



# The Dock and Harbour Authority

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## Editorial Comments

### Sursum Corda.

Almost simultaneously with the appearance of our last issue, the war with Germany came to a sudden, but not unexpected close. Thereupon, the nation has fittingly and devoutly given public expression to its profound relief at deliverance from a great peril, and to its sincere satisfaction at the triumphant termination of a strife waged in Africa and Europe and on the high seas for five-and-a-half long years. The conflict with Germany has been marked by devastation and ruin unprecedented in the history of the world, and has been attended, moreover, by an exhibition of devilish cruelty on the part of the Nazi régime, the horror of which is almost inconceivable.

Although the task of the Allied nations is not yet accomplished, and will only be completed with the final and overwhelming defeat of Japan, still the nation may fittingly and excusably rejoice in the partial realisation of its "simple and honourable purposes," and may gather fresh strength and encouragement for the pursuance of its path towards the complete liberation of the world from tyranny and oppression. To that time our readers will look forward with keen anticipation and resolute hearts, just as the Hebrews of old looked forward under the inspiration of the prophet Micah to the day when in consequence of Divine protection they should "beat their swords into ploughshares and their spears into pruning hooks; when nation should not lift up a sword against nation, neither should they learn war any more."

Meanwhile, let us echo the clarion call of the Prime Minister: "Forward, unflinching, unswerving, indomitable, till the whole task is done and the whole world is safe and clean."

### Post-War Conditions at Cardiff.

With commendable zeal and enterprise, the Incorporated Chamber of Commerce of Cardiff has recently issued in brochure form a manifesto setting out the capabilities and resources of the port and the possibilities of their application to the post-war furtherance of local maritime trading and commercial interests. The brochure is a detailed and comprehensive document of 31 pages, admirably compiled and edited, consisting of a series of sectional reports, prepared by special sub-committees appointed for the purpose. These reports make interesting and informative reading.

Cardiff, located as it is in a colliery region of the first importance, has so pre-eminent a reputation in connection with the coal trade and its products, that it is appropriate that the subject of the first and leading report should be coal and its exportation. Coal, coke and patent fuel are, in fact, the chief commodities handled at the port, and though the aggregate quantity exported had fallen from 22 million tons in 1923 to one-half that amount in 1939, yet this has not affected the leading position of the port as a coaling station among its compeers in Great Britain. It is pointed out that coal-mining is still the largest single source of employment in Wales—particularly in South Wales and the adjoining county of Monmouthshire. It is, therefore, urged that a rapid and substantial increase in South Wales coal exports is essential to the prosperity of the area. In order to achieve this object, not only will active propaganda be necessary, but care will have to be taken in the formulation of peace conditions to see that there is no repetition of the mistake made at the conclusion of the last war, when German reparation coal was allowed to flood the normal markets abroad to such an extent as to obtain permanent penetration, while the useful experience gained by that country was certainly utilised to the detriment of British interests.

As regards Port Facilities for Coal Handling, the Report says that "it is obviously most essential that the facilities of the Port of Cardiff should be made equal to those of any other British or Continental port, if South Wales is to be competitive in post-war trade. The Great Western Railway has done much in the years preceding the present war to improve the facilities existing at Cardiff, Penarth and Barry Docks for the efficient handling and shipment of coal, from the point of view of speed in shipment, the provision of facilities for mixing various types of coal at shipment, and the minimising of breakages of coal during shipment." An appendix to the report, reproduced on a later page, sets out the various coaling appliances now in operation, or capable of being operated at the ports in question. The Report goes on to say that the provision of dock facilities is of such importance to coal owners, that it is desirable that a Joint Standing Committee should be set up, so that all matters affecting the general interest can be discussed without delay as the occasion

*Editorial Comments—continued*

arises. The suggestion is an admirable one, and will doubtless commend itself to all the parties concerned.

At this point the question of the influence of oil fuel on the situation inevitably obtrudes itself in the mind of the reader. It has to be recognised that if the coal trade is to recover, let alone expand, coal must prove that it can be burnt at least as economically as oil in ship propulsion and so the Committee call upon the Government to take steps to provide an opportunity for this fundamental requirement to be demonstrated. The use of automatic stokers in boiler firing, they say, needs further investigation, in order that the position may be definitely clarified for guidance in the design of new vessels. While appreciating the desirability of this course, it hardly seems to us to devolve upon the Government to carry it out. It should be undertaken by the shipbuilding industry, or the shipowners who will benefit therefrom.

But while coal, as the staple product of the region, claims pride of place in a consideration of the port activities, a very high degree of importance is attached to the general export trade and a strong plea is made for its expansion at the Port of Cardiff, which, it is claimed, has, during the war years, acquired a sound and extensive experience in regard thereto. The war, on strategic grounds, necessitated a great diversion of shipping and cargoes from their normal routes to the West Coast and South Wales ports. Accordingly, it is asserted that Cardiff has derived a new confidence and determination to hold on to what it has acquired. "It knows now beyond any shadow of doubt that it can discharge or load general cargoes as efficiently and as expeditiously as any port in the country." The spirit animating this assertion and claim is highly creditable to local enterprise, and Cardiff certainly deserves to derive benefit from the exertions which have been made during the war in the national interest. But whether general cargoes will continue to come to, and go from, the port in quantities comparable with those of recent years is largely a question of geography and economics. Merchants and shipowners will naturally choose the route which best suits their purpose, unless (and we hope that this will not prove to be the case) Government, under political or other influence, should dictate certain ports of destination and departure. The only result of such arbitrary action, in our opinion, would be dislocation of trade and injury to the country's prosperity. Trade cannot be domineered in this way and any experiment on these lines is, we think, doomed to failure. The Report certainly discusses the considerations which would influence a practical man of business in the selection of a port of shipment, or discharge, for his goods and claims that among the host of factors which have to be taken into account, "the intangibles, which are nevertheless very real and fundamental," are in favour of the port. The question is a delicate and difficult one, but we imagine that points of essential importance—"fact, figure, design and cost"—will turn the scale.

There are so many topics of interest in the publication that it is a matter of regret that limitations of space prevent us from commenting on them all. Some selected excerpts from the various reports will be found on a later page in this issue, from which our readers will be able to gauge the general nature of the proposals made for the development of the trade of the port, and to form their own conclusions as to their probable effect. Cardiff will we trust, be able to profit from the energetic disposition of its administrators and not least from that of its Chamber of Commerce.

**The Future of British Canals.**

The future welfare of the canal industry in this country has on a number of occasions been the subject of comment in these columns and having regard to the urgency of the transport situation at present it is not surprising that the matter is brought forward once more for general consideration in the statement just issued by the Canal Joint Committee, which is reproduced on a later page of this issue. Canals in Great Britain, as everybody knows, have been under a cloud of depression for a long period. Accordingly, those of our readers, who have appreciated the services which such waterways have rendered in the past and are still capable of rendering under efficient and far-sighted direction, and who are interested in the promotion of inland water transport, will

welcome the opportunity afforded by post-war reconstruction planning to put the industry on a sound footing and to restore it to its rightful position in the front rank of agencies engaged in the national service.

Despite the admitted defects, and they are by no means few or insignificant, of British Canals, both in construction and operation, canals, generally, no less than rivers and natural waterways, are assets of vital importance to the community, and they cannot be allowed to languish or become obsolete without serious detriment to the economy of internal transport. For certain traffics, principally bulk commodities (grain, flour, cement, and the like) they constitute the cheapest form of conveyance, and their value has been increasingly recognised on the Continent of Europe, where a vast network of artificial waterways has been created to the general advantage of the countries concerned.

As regards the proposals put forward by the Canal Joint Committee for the resuscitation of the industry, there may be differences of opinion on points of detail, but, generally speaking, it will be felt that a strong case has been made out for a fresh and fundamental consideration of the whole question. In particular, the Committee call attention to the proved value of a Special Department of the Ministry of War Transport in looking after the interests of inland waterways, and cordial support will, doubtless, be forthcoming for the suggestion that the Department created for this purpose should take on a permanent character.

Then it is claimed that the subject of local and regional planning of manufacturing industries, should receive careful expert attention so as to take into account the possibility and advantage of providing waterside sites and facilities in order to cheapen carriage and relieve the roads and railways of a superfluous load of traffic.

As regards an official allocation of traffic and the difficulties which may be expected to arise out of the conflicting interests of alternative means of transport, the Joint Committee express their opposition (and we think rightly) to any form of dictation or compulsion, stating that traffic should be allowed to flow along the routes best suited physically and economically to serve the particular trade concerned.

The statement strongly advocates the adoption of correlated rates structures for all forms of inland transport. Tolls, which necessarily are an integral part of a rates structure are not discussed, nor is the question of their abolition and replacement (as proposed in certain quarters) by a system of boat taxes.

There is scope for further discussion of details in the report, but the investigation of these we must leave to our readers.

**Proposed Maritime Engineering Research Station.**

At a recent meeting of the Glasgow and District Association of the Institution of Civil Engineers, Mr. F. E. Wentworth-Sheilds, the President of the Institution, took the opportunity of announcing that the Department of Scientific and Industrial Research had just appointed a committee to consider the establishment of a new engineering research station to deal with such matters as river improvement, harbour design and land reclamation. The announcement is welcome and it is appropriate that it should follow the public advocacy of such a station, on the lines of the Vicksburg Waterways Experiment Station in the United States, by the President in his inaugural address in November last, as reported in our December issue. The work done at Vicksburg has been of the greatest value to American engineers, and it is indubitable that an equally wide field of usefulness in this country is open for a station of this character. Hitherto, model experiments have had to be undertaken by private interests, involving in many cases, financial outlay which, while perfectly justified, was nevertheless a serious handicap to engineering enterprise. Harbour engineers, engaged on public schemes of vital importance, will cordially welcome the availability of a station, at which preliminary experimental work can be undertaken by expert investigation under favourable and reliable conditions.

**Editorial Address:** Contributors and correspondents are requested to note that the Editorial Address for this Journal is 27, Carlisle Road, Eastbourne. Applications for copies of any issue should be made to the Publishing Office and not to the Editor.



Aerial View—Port of Cardiff, Showing Dock Entrances

(Courtesy of the Great Western Railway)

## *The Post-War Prospects of the Port of Cardiff*

### *Some Selected Excerpts from the Report of the Cardiff Incorporated Chamber of Commerce on Post-War Reconstruction*

The Reports, from which certain extracts are reproduced below, were prepared by Sub-Committees elected by the various Trade Organisations at the instance of the Post-War Reconstruction Committee of the Cardiff Incorporated Chamber of Commerce. The Secretary of the Main Committee is Mr. H. Kendrick. There are three appendices, two of which are incorporated with the extracts.

#### **Dock Authority**

Provoked by recent statements that substantial development of the Port of Cardiff and of other South Wales ports can only be effected by the transfer of ownership of the docks and merging into a Bristol Channel Authority, this Committee wishes to record as its considered view that such a change of ownership is unnecessary and undesirable. To promote such a scheme at a moment when the nation's economy is being established on a post-war basis is fraught with grave risk.

Apart from this, the Committee submits that any attempt to integrate bodies with such widely different outlooks, involving ports, some of which belong to a "Development Area" and some of which do not, would but hamper the Government in the implementation of its declared policy to use its powers to produce a high and stable level of employment. The claims of South Wales

as a Development Area to maximum Government assistance in the erection of diversified industry, involving as it must, every possible encouragement and help in the establishment of far greater import and export trade would clash fundamentally with the claims of ports on the other side of the Bristol Channel, the diversification of whose industries is already achieved.

#### **National Dock Labour Corporation**

The Committee welcomes this effort to remove, it is hoped, permanently, the element of insecurity which pre-war, characterised the lives of dock workers. There are, however, two aspects of this scheme of decasualisation which can act adversely on the full development of a growing port:—

- (1) The percentage surcharge which is authorised has varied as between scheme and scheme. It is submitted that this surcharge is national in origin and should be distributed evenly over all the ports, otherwise the burden will rest lightly on some and weigh heavily on others.
- (2) As continuous employment depends on constant flow of shipping and goods through ports, the scheme of decasualisation will be gravely impaired unless arrangements are made to ensure equitable distribution of import and export between the main ports.

#### **Rates and Charges**

**Railway Rates.**—One feature during the investigation was the existence of special rail rates—scale and exceptional—between say the Midlands and London and Liverpool. It is agreed that the port cannot be developed unless special rates on a parity shall be available to Cardiff. It is believed that this will not prove a stumbling block. The Great Western Railway have asserted their determination to do everything possible to develop the general cargo trade of the South Wales Ports. The Government are committed to assist South Wales as a "development area." They



### *Post-War Prospects of the Port of Cardiff—continued*

are obliged, in equity to industry which they will seek to locate here to place them in a reasonably competitive position. They have declared that, in order to achieve a high and stable level of employment they will take such action as is necessary to ensure the full employment of the basis services, going so far as "to stimulate the modernisation of their capital equipment, e.g., improvement of docks and harbours." Assured of such support, it is believed that fair treatment cannot be denied when special rates are required.

**Port Rates.**—There is, however, an equally important consideration, viz., Port Rates. Here traders have criticised the high port charges at South Wales Ports, compared with those of Liverpool and London, adding that it is some time after goods are shipped before a shipper receives a substantial account for port rates for which he finds he has only inadequately covered himself. Careful examination has shown that a very real change should be made in the charges system of the port to place it in relatively the same position as London and Liverpool.

If Liverpool be taken as an example it is found that they have developed a system very attractive to shippers. The latter are recommended by the Mersey Docks and Harbour Board to consign rail traffic "For Dock Haulage." As a result of arrangements made between the Board and Railway Companies, export traffic can be consigned to alongside shipping berth in such a way that all or most of the handling charges are saved. The traffic is taken over from the railway company outside the dock estate. It is hauled to shed at berth by the Board for which service a small charge is made. The goods are unloaded by a master porter and a charge is made. But by virtue of the agreement mentioned the Board and Master Porter receive from the Railway Company drawbacks for cartage and rebates to cover Station and Service

terminals which, together, either entirely or very largely cancel out the original charges leaving little or nothing to be paid by the shipper. Advantages of a similar nature accrue in connection with import traffic. An arrangement, different in detail but substantially similar, exists in London. It seems clear that, if Cardiff is to develop, it is entitled to a like method of operation which has the double advantage to the shipper of lower costs and in addition renders his position more secure in that he need not fear receipt of a substantial bill for charges after the shipment has taken place. It must not be argued that this issue need not be rectified while war controls continue because already traders, through the Traders Co-ordinating Committee on Dock Charges on which such a powerful body as the Federation of British Industries is represented, have been complaining. They point out that traders are having to quote prices abroad without knowing the port of shipment.

Furthermore, it is known that one of the leading forward agents, whose purpose it is to keep shipper advised on all matters which affect their interests, has recently drawn particular attention to the high level of charges at Bristol Channel Ports generally. (This, of course, includes Cardiff). Clients are reminded that though the cargo in which they are interested may be diverted from its normal port, the same Conference rate of freight has to be paid whatever the port of shipment. While advising shippers to refrain from the use of ports in the Bristol Channel, the agent in question cannot avoid the conclusion however, that the only equitable course is that Cardiff and the other Bristol Channel ports should follow the practice established at the main general cargo ports. These observations confirm the necessity for immediate attention to the early establishment of a system of port charges, simple in design and competitive with the charges in vogue at London and Liverpool.



Aerial View—Roath Dock, Cardiff  
(Spiller's Silo and Mills on Right Side, G. K. & B. Dowlais Steel Works, etc., left top of picture).

[Courtesy of Great Western Railway]



*Post-War Prospects of the Port of Cardiff—continued***Liner Berths**

The next important step is to make arrangements with Liner Companies, whereby a system which prevails at London and Liverpool is established at Cardiff. At those ports, the ship accepts the cost of receiving, shipping and stowing. This means that traffic for export is received at shed and afterwards placed abroad by the Liner Company.

It is all too obvious that, until Cardiff develops a simple and comprehensive system covering transport from factory to ship's hold, shippers will not be attracted to the use of the Port of Cardiff. Indeed these specific improvements lie at the basis of future success.

**Oil Bunkering**

The port's facilities for oil bunkering were examined, and although found satisfactory for present requirements, might have to be considerably developed to serve future needs. Sufficient stocks of oil can be carried and the oil, through an 8-in main laid along the whole length of No. 1 Berth, Queen's Dock, is readily available for bunkering all sizes of vessels.

**Recommendations**

The following recommendations are considered by the Committee to represent the primary requisites for the development of general cargo trade.

1. That the Chamber of Commerce accepts as one of its primary aims and responsibilities in Post-War reconstruction, the development and fostering of a high level of General Cargo Trade through the Port of Cardiff.
2. Government.—That immediate approach should be made to the Government requesting their aid in the establishment of general cargo trade through the Port of Cardiff. The appeal should be based on:—
  - (a) The paramount National and strategic importance of such ports as Cardiff in times of war. As no Port Authority can provide an efficient and economic service unless its facilities are worked on a parity with those of other essential ports, sufficient traffic should be passed through the Port of Cardiff economically to justify full working efficiency.
  - (b) As Cardiff is one of the chief ports of South Wales, designated by the Government a Development Area, every possible help and encouragement should be requested from the Government to achieve the fullest development, by general cargo trade, of the port's facilities on which the prosperity of existing and new industries will ultimately depend.
  - (c) Particular attention should be drawn to the interim period immediately post-war when controls are gradually being lifted so that the war-time activity of the port will be followed by full-time activity with import and export general cargo trade. There are indications that this change-over has already begun at some of the main ports of the country.
3. That as the Great Western Railway Company has already declared its intention to develop and foster general cargo trade through the Port of Cardiff, it should be asked to consider the following recommendations:—
  - (a) The provision of equal access to all forms of transport without restrictions direct or indirect.
  - (b) The establishment of a schedule of rates and charges together with a system of rebates so as to make the Port of Cardiff comparable with other main ports.
  - (c) Reasonable decentralisation so as to afford greater freedom or authority to the Docks Section.
  - (d) Establishment of a permanent Advisory Committee representing interests using the Port whose purpose would be by whole-hearted co-operation, to promote the prosperity of the port and of all its users while protecting each individual interest.

- (e) The appointment of one or more full-time agents whose business it would be to secure the maximum import and export trade through the Port of Cardiff.
4. That Shipping Conference Lines be approached with a view to the establishment of Cardiff as a scheduled General Cargo Port.
5. That Shipping Companies which thus establish liner berths at Cardiff should be asked to provide to exporters and importers privileges similar to those provided by them at other liner ports.
6. Railway Rates.
  - (a) That the Chamber should forthwith cause an examination to be made of certain class and exceptional rates operating (particularly in the Midlands) from and to other ports with a view to similar rates being applied to Cardiff if undue preference is proved.
  - (b) That representations be made to the Railway Companies to extend specially favourable consideration with regard to Railway Rates for export goods, particularly for Industries established or to be established in South Wales.
7. Cold Stores.—The question as to the ultimate purpose and use of the King's Wharf Cold Stores is of the utmost importance to the trade of the Port of Cardiff, and the Committee recommend that the Local Members of Parliament should be asked to bring the matter before the respective Ministries so that the interests of Cardiff are fully protected in any arrangements which may be made for the disposal of the premises.
8. National Dock Labour Corporation.
  - (a) That the surcharge in connection with this scheme and that of the Ministry of War Transport should be the same for all ports so operated.
  - (b) That it should be represented to the Chairman of the National Dock Labour Corporation, that the work of the Corporation will be seriously impaired unless there is an equitable distribution of trade between the main ports. Whether or not decasualisation be continued after the war under some scheme other than N.D.L.C. or that of the Ministry of War Transport, these recommendations stand.
9. Severn Waterway.—In view of the fact that the Severn Waterway is the Nation's best water route to the Midlands and that it is capable of such further development as to make its superiority unquestioned, the Cardiff Corporation should be apprised of the Chamber's views and be recommended to maintain close contact with the Severn Commission.
10. Publicity.—That a copy of this particular report be sent to the Cardiff Corporation Development Committee and the Welsh Reconstruction Advisory Council with the request that they should act in concert with the Chamber of Commerce.
11. Select Committee.—That the Chamber should appoint a Select Committee to implement the proposals set out in this report.

**Timber Trade**

The Port of Cardiff has always handled upwards of 75 per cent. of the imports of timber to South Wales, much of it destined for the Midlands and West of England, and there appears no reason to doubt that similar enterprise will be found amongst the importers after the war. One disturbing factor at present is the size of tonnage which the Government has been ordering throughout the war and which, apparently, still remains official policy. While ships of 8,000 tons and upwards may be suitable for many trades, and for war purposes, they are, with the exception of trade from the Pacific seaboard of Canada and U.S.A., of little use for timber cargoes. The great majority of the loading places in the Baltic in the White and Kara Seas cannot take these large vessels and this applies also to a number of places on Canada's maritime coast. This is only half the objection to these bigger ships as importers find, for a variety of technical reasons, that they are not nearly as suitable for the trade when they arrive at their discharging ports as what is termed the "handy" size ship of 2,500 to 4,000 tons. In the period between the wars it was found that Scandinavian

(Continued on page 35)

## APPENDIX "A."

**SOUTH WALES PORTS.**  
**SCHEDULE OF COAL TIPPING APPLIANCES.**

Port.	Dock.	Size of Vessel which can be accommodated.	No. and type of appliances.	Type of anti-breakage appliance.	No. of appliances fitted with Norfolk spade for digging out Washed Coals which do not run freely.	No. of Berths where more than one appliance can be utilised for the same steamer, thus enabling cargo and bunkers to be loaded simultaneously.	Capacity of wagons which can be dealt with.	Mixing Facilities.
<b>CARDIFF</b>	<b>Queen Alexandra Dock</b>	Any size ..	9 Travelling hoists.	7 anti-breakage boxes of about 1 ton capacity. 4 Hancock Escalators.	2 (No. 2 Tip) (No. 4 Tip)	Any two adjacent appliances (and in some cases 3 or 4) can be thus utilised, provided vessel is suitable size.	20-ton	Any reasonable number of coals can be intimately mixed, i.e., wagon and wagon.
	<b>Roath Dock</b>	Vessels taking up to 8,000 tons cargo and bunkers.	1 fixed Belt Conveyor	1 Escalator	..	..	20-ton	do.
			1 movable Belt Conveyor.	1 Escalator	..	..	20-ton	do.
	<b>Roath Basin</b>	Vessels taking up to 8,000 tons cargo and bunkers.	2 fixed hoists	2 Escalators	1 digger ..	..	20-ton	do.
	<b>East Dock</b>	Vessels taking up to about 4,000 tons cargo & bunkers.	7 fixed hoists	7 anti-breakage boxes of about 1 ton capacity.	1 (No. 7)	..	20-ton	do.
	<b>West Dock</b>	Vessels taking up to about 1,200 tons cargo & bunkers.	3 fixed tips .. 1 " hoist	There are no anti-breakage appliances but the drop from the chute to the vessel's hold is not great.	..	..	12-ton	do.
<b>PENARTH</b>	<b>Penarth Dock</b>	Vessels taking up to about 7,000 tons cargo & bunkers.	4 fixed hoists	4 anti-breakage boxes holding about 20/25 cwt.	..	..	20-ton	do.
	<b>Penarth Harbour</b>	Vessels taking up to about 750 tons.	4 tips ..	..	..	..	12-ton	do.
<b>BARRY</b>	<b>No. 1 Dock</b>	Any size up to about 14,000/16,000 tons (not at all the appliances).	13 fixed hoists 5 movable hoists, 1 traverser.	10 anti-breakage boxes varying between 1 and 4 tons capacity. 8 Escalators.	2 (No. 1 and No. 8).	5 No. 18 and Movable. No. 19 and 2 Movables. No. 32 & " No. 33 " No. 3 & " & No. 4.	12-ton at 6 appliances 20-ton at 13 appliances.	do.
	<b>No. 2 Dock</b>	Vessels taking up to about 8,000/10,000 tons cargo and bunkers.	9 fixed hoists 2 movable hoists	6 anti-breakage boxes 3 Escalators.	2 (Nos. 23 and 26).	1 (No. 31 and 2 Movables)	12-ton at 5 appliances 20-ton at 6 appliances.	do.

## DOUBLE SCREENING APPLIANCES.

Cardiff East Dock, 1.

Cardiff West Dock, 1.

Barry No. 1 Dock, 9.

*Post-War Prospects of the Port of Cardiff—continued*

owners had studied this market to a far greater extent than British owners, and unless the latter take action now in this matter the probability is that, as before the war, the vast bulk of the timber cargoes will come forward in foreign ships. Doubt on this point makes it somewhat difficult to put forward views on the accommodation available at Cardiff Docks. There is suitable quay space in the East Dock, but large vessels cannot make use of this dock; on the other hand space in the Queen's and Roath Docks is very limited and will quite likely be found to be quite inadequate for requirements. Importers will, therefore, be compelled to search for the much more suitable smaller ships which, on arrival could be accommodated at the convenient berths in the East Dock. Only one thing is abundantly clear—there must be large importations of timber in ships of one size or another for many years to come, the owner who studies this market can look forward to a more sustained demand than he could probably find in other trades.

**Port Facilities at Cardiff Docks**

The Cardiff Docks consist of a series of docks, the Queen Alexandra Dock, the Roath Dock, Roath Basin, East Dock and Basin and the West Dock and Basin, each with its own lock entrance and inter-connected by communicating passages or locks.

The total area of Cardiff Docks is about 1,000 acres, of which the water area is 165 acres.

The dimensions of the various docks are as follows:—

	Length	Width	Quayage	Water Area	Normal Depth of Water	Lock Entrances	
						Length	Width
Queen Alexandra Dock	Feet 2,550	Feet 800	Feet 9,315	Acres 52	Feet 37	Feet 850	Feet 90
Roath Dock .. ..	2,400	600	9,885 {	33	33½	600	80
Roath Basin .. ..	1,000	550		13	28	350	80
East Dock .. ..	4,300	500	9,480 {	44	25	200	49
East Basin .. ..	380	250		2½	Tidal	220	55
West Dock .. ..	4,000	200	8,950 {	19	19	152	36
West Basin .. ..	300	200		1½	Tidal		45
			37,630	165			

In addition to the above, there are two tidal passenger pontoons where four vessels each up to 260-ft. in length can be accommodated.

The port is well equipped for handling General Cargo, there being twelve equipped berths where deep sea vessels can load or discharge general cargoes. In addition a large number of coasting and continental vessels can be accommodated in the East and West Docks.

Batteries of electric and hydraulic quayside cranes are available for loading and discharging vessels and there are extensive warehouses established at the quays which enable goods to be warehoused or delivered ex warehouse direct from or to ship.

Twenty-six barges are available for general use and for facilitating the overside discharge of cargo from deep sea vessels.

A floating suction grain elevator capable of handling 130 tons of bulk grain per hour overside to barges, introduced for dealing with parcels of grain in general cargo ships, supplements the modern grain handling equipment at Messrs. Spillers' Mills, Roath Dock, where grain vessels can discharge direct to Mill and where there is silo accommodation for 30,000 tons of grain.

Details of the warehouse accommodation are as follows:—

**Queen Alexandra Dock**

	Area Floor Sq. ft.	Capacity Tonnage Tons
*" A " Shed .. ..	116,667	12,000
" B " Shed .. ..	52,200	5,000
" C " Shed .. ..	101,814	10,000
" F " Shed .. ..	24,080	2,500
*" G " Two Floors and Basement .. ..	69,300	6,000
*" H " Four Floors .. ..	46,547	3,000
*Empire Wharf Shed .. ..	43,200	4,000

**Roath Dock**

*" N " Shed.—Two Floors .. ..	92,623	6,000
*" W " Shed.—Two Floors .. ..	27,200	2,500

\*(These stores have deep water berths alongside).

Cattle Lairs—accommodation for 950 cattle.

**East Dock**

Five Warehouses in occupation of G.W.R. and tenants.

Total Floor Space .. ..	248,147 square feet
Total capacity .. ..	24,600 tons

	Floor Area Sq. ft.	Tonnage Capacity Tons
Atlantic Warehouse—Eight Floors .. ..	60,000	5,000

**King's Wharf Cold Store**

During the War the Ministry of Food have built a Cold Store at the King's Wharf, Queen Alexandra Dock, where vessels with refrigerated cargoes can discharge direct into Cold Store.

This Cold Store consists of 26 cold rooms, with a total cubic content of 1,118,395 cub. ft., capable of taking 10,000 tons of refrigerated cargo.

The Store is well served with rail facilities at the front and rear with a road transport loading platform and ample parking facilities.

This Cold Store came into full operation in October, 1941, and is at present staffed and managed for the Ministry of Food by the Great Western Railway.

Cranes.—Particulars of the quayside cranes are as follows:—

	Electric Hydraulic		Capacity
Queen Alexandra Dock.			
North Side .. ..	32	—	30 cwts. to 15 tons
South Side .. ..	8	7	2 tons to 8 tons
Privately owned .. ..	—	4	2 tons



**Post-War Prospects of the Port of Cardiff—continued**

<b>Roath Dock.</b>			
North Side ...	8	5	3 tons to 8 tons
South Side ...	—	4	18 tons to 23 tons
Privately owned	—	12	2 tons to 5 tons
<b>East Dock.</b>			
East Side ...	—	23	1½ tons to 3 tons
Top of East Dock ...	—	2	3 tons to 6 tons
<b>West Dock.</b>			
East Side ...	—	1	1½ tons
	48	58	Total 106

**Floating Cranes**

Floating Cranes for dealing with heavy lifts are available, viz.:  
One Floating Crane with a lifting capacity of 100 tons.

And two with a lifting capacity of 50 tons.

The two 50-ton cranes are managed by the G.W.R. for the Ministry of War Transport.

**Mobile Cranes**

The following cranes are available for handling cargo ex railway wagons, bank, etc., and general work at any part of the docks.

Three travelling (rail) steam cranes—lifting capacity up to 6 tons.

Fourteen mobile road cranes with lifting capacity up to 10 tons.

**Tugs.**

The Great Western Railway Company own three powerful tugs and manage three others, which are kept specially for assisting vessels in dock, while further dock and outside towage facilities are provided by private owners as the necessity arises, they possessing a fleet of 10 tugs.

**Dry Docks, etc.**

There are ten dry docks, one pontoon and one tidal gridiron available for all types of ship repairs, and the larger dry docks are capable of taking the largest vessels that use the port. One dry dock and the tidal gridiron are owned by the Great Western Railway Company, and the others are owned by Ship Repairing Companies.

**Personnel**

The authorised register of the National Dock Labour Corporation at present provides for a total of 1,912 dock workers.

The actual number of workers employed is as follows:—

Transport Workers ...	1,406
Coal Trimmers ...	283
Riggers ...	207
	1,896

(In addition there are 81 weekly workers).

All these men can be allocated to dock transport work as required.

**Dock Improvements**

During the past four years many improvements and additional facilities have been provided, the major items being:—

Twenty electric quayside cranes  
(six with a lifting capacity of 6 tons, and  
14 with a lifting capacity of 3 tons).

Two travelling steam cranes (rail).

Fourteen mobile road cranes.

Provision of additional exchange sidings between docks and railway which ensure avoidance of exchange delays. Additional accommodation, 1,250 wagons.

New tarmac surfaced roads giving additional access to warehouses and to all the general cargo quays to enable road transport to receive and deliver direct from and to ships.

"H" Shed (Old Cold Store) converted to a general cargo warehouse.

One new tug purchased and three others obtained on loan.

Sixteen additional electric and petrol bogies provided for speedy handling of goods in warehouse.

Atlantic Bakery reconditioned and provided with lift and hoists for food and general warehousing.

Grabs provided for handling bulk cargoes.

Roller conveyors provided to facilitate the handling and discharging of various types of general cargo.

Lewis Hunter coaling cranes adapted for use as general cargo cranes.

Crane track provided at the Commercial Dry Dock.

East Dock crane track extended to enable cranes to work throughout the whole length of the East side of the dock.

Three canteens provided for dock workers.

Empire Wharf developed; shed, road and rail facilities provided.

Office accommodation provided to enable all the staff dealing with general cargoes to be stationed at the dockside.

Road-Rail transfer sidings at Queen's and Roath Docks.

Hatch tents provided to protect general cargo during bad weather and save discharging time.

Extensive area of ground known as the Prairie, occupying a central position, made suitable for the assembly of road vehicles ex ship for shipment.

Additional rail weighbridge provided to facilitate despatch of general cargo.

Ship to shore telephone service extended to all deep sea general cargo quays.

New sidings laid at Queen's Dock to facilitate general cargo work.

Coaling crane quay, Roath Dock, remodelled to enable it to be used as general cargo berths. Roadway alongside quay and new rail connections provided.

**Recent Cases of Good Work Performed.**

S.S. *Tetela*, General Cargo, 3,900 tons, 3½ days.

S.S. *Aza Gray*, General Cargo, 6,359 tons, 5½ days.

S.S. *Empire Porpoise*, General Cargo, 9,052 tons, 7½ days.

S.S. *C. M. Hall*, Steel and General, 8,397 tons, 6 days.

S.S. *John McLoughlin*, Steel and Cargo, 8,767 tons, 6 days.

S.S. *Port Jackson*, Meat and General Cargo, 9,196 tons, 8 days.

(On the 22nd March, 1944, 2,109 tons of meat and 147 tons of general cargo, a total of 2,256 tons, were discharged in one day).

S.S. *Bald Eagle*, Meat, 4,937 tons.

This vessel was discharged throughout at the record speed of 22.24 tons per gang hour.

**Fire Prevention on Shipping at Port of London**

The London Port Emergency Committee, in pursuance of the powers vested in them under "the Control of Traffic at Ports Order, 1939," have issued the following directions, with effect as from May 7th, 1945:

All ships irrespective of tonnage coming within the provisions of the Petroleum Spirit in Harbours Order, 1939, and the Government Explosives in Harbours Order, 1939, must, during their stay in the port of London, at all times have on board, as a minimum, the following numbers of men:

Ships up to 1,000 g.r.t.—Two men, to include a deck or engineer officer.

Ships up to 2,000 g.r.t.—Three men, to include a deck or engineer officer.

Ships over 2,000 g.r.t.—Five men, to include a deck and an engineer officer.

The numbers maintained on board are in no case to be fewer than the minimum number required to provide for the operation of the major fire appliances of the vessel, including portable emergency fire pumps.

## Clyde Ports and the War

### Statement by Chairman of Clyde Navigation Trust

At a meeting on May 1st of the Clyde Navigation Trust, the Chairman, Mr. William Cuthbert, made some illuminating remarks on the part played by Glasgow and other Clyde ports and shipyards during the war period.

There has been a good deal in the public Press of recent weeks, he said, about the future of the Clyde, and the part which the Clyde had played in the war effort. Up to the present, however, the vastly preponderating share in that effort undertaken by the Port of Glasgow has not been mentioned, and I think that it is desirable to say a word about it because the team work within our Port during the war years has been splendid, and excellent results of national and exceptional importance have been achieved.

It was of great advantage that the Trustees possessed so much valuable floating plant and shore equipment. The floating plant served all parties on the river, even outside the jurisdiction of the Trust. Dredging was undertaken in all manner of places and completed to the satisfaction of the various authorities, notwithstanding that calls were throughout heavy on the Trustees' plant within their own extensive limits.

The shipbuilders from Glasgow and Clydebank have played a tremendous part in the world-wide war preparations. In that section of the river the biggest ships afloat are turned out. Notwithstanding that work and the consequent heavy launching programme, world ships have passed up and down the river throughout the war without any serious mishap, carrying millions of tons of goods, Lease-Lend equipment and stores of all kinds and hundreds of thousands of troops. It was an exceptional facility to be able to transport the thousands of aeroplanes landed at the King George V Dock direct into Renfrew aerodrome, saving much time and expense.

The Clyde Anchorages Emergency Port was established by the Ministry of War Transport in the estuary of the river, largely as an insurance against the possible loss of the major ports. The scheme actually had its origin in the Navigation Trust building. It was operated by the Ministry through the Regional Port Directorate which introduced excellent improvisations. Splendid work was done by the Ministry, although fortunately, the Emergency Port never had to shoulder the work which might have been placed upon it.

No doubt when the future of the Clyde is being considered it will be kept in mind that the Clyde Anchorages Emergency Port became necessary because no adjoining port authority had jurisdiction in the waters of the lower reaches or an undertaking able to conduct such an emergency port. Our own port with its quays of over 12½ miles and having long experience in dealing with ocean services from all parts of the world was, and is, fortunate in the respect that its berthage is situated in the great City of Glasgow and near the Scottish industrial belt. In planning for the future it is important that all interested parties should consider the Clyde as a whole in the national interest so that it may be developed and equipped to meet the competition that may be faced after the war. In that connection I should like to add that traders continue to impress upon us that it is of the utmost importance that modern harbour facilities should be available in close proximity to the industries and warehouses in the Glasgow area.

It will be necessary for the Port Authority to provide on an economic basis the service which attracts shipping and attracts merchants to use ships. This is the policy followed by the Clyde Trustees in the past which has raised the Port of Glasgow to its present influential position. The same considerations must continue to govern future Clyde development.

### Scottish Port Directorship Change.

Mr. Tom Macpherson, who has been Regional Port Director for Scotland since 1942, has relinquished his appointment, and is succeeded by Mr. Hector McNeil, a Labour member of the Glasgow Corporation, of which he is a representative on the Clyde Navigation Trust.

## Legal Notes

### Breach of Dock Bye-Law Regulations

At the Liverpool City Magistrates' Court on April 13th the Mersey Shipping and Transport Company, Ltd., stevedores, of St. Paul's Square, Liverpool, were summoned for a breach of Regulation No. 42 of the Dock Bye-Laws, in failing to secure the hatch beam of an 8,000-ton Liberty ship, resulting in an accident to William Murphy, one of their employees.

Mr. H. Hudson, H.M. Inspector of factories, prosecuting, said the case arose out of an accident to a registered dock worker in the employ of the defendant firm in an 8,000-ton Liberty ship in a Liverpool dock on February 9th. General cargo was being unloaded by slings from the forward end of the 'tween decks, No. 1 hold. The top deck hatch, instead of being completely open, had two sections of hatch covers still in position at the extreme forward end, and the allegation was that the beam was not secured so as to prevent its displacement. As the unloading proceeded into the forward part, the wire rope fall began to foul the beam, and eventually lifted it out of its socket, with the result that the whole section of hatch covers fell below on the men working there, and Murphy was struck and seriously bruised on the back, head and arms. The prosecution contended that these beams should have been secured by ropes or clamps, while it was always possible for them to have been taken away altogether.

Evidence was given by Henry Mount, of Clarendon Road, Bootle, who was working as winchman while the cargo was being unloaded. He noticed the beam jump up two or three times owing to the play of the wire fall coming into contact with it. Owing to a sudden burst of steam from one of the winches, one end of the beam was unshipped and about six covers fell down below.

In reply to Mr. Cafferata, for the defence, witness said this was a Liberty ship, and on such vessels there was no bolt to secure the beam as was the case with most British ships. Instead, there were clips at the end of the beam which fitted into a slot. He did not consider these clips were as reliable as the bolt system. He had noticed the beam moving up and down a bit, but he did not complain to the hatch foreman that there might be danger down below, as he could see that for himself.

Addressing the magistrate, Mr. Cafferata said these American Liberty ships were fitted with a patent gadget for securing hatch beams. He suggested that these clips were not efficient and that they were, in fact, a trap. He said shortly before dinner time on this day the men with their unloading came to the point when they would have to go under the two remaining sections of hatch covers and the hatch foreman went aft to see the ship's foreman, and, on returning, found the accident had happened. Unfortunately, the beam, by the fouling of the wire rope, had been jerked out of position. The firm's foremen knew that the beams on these ships were likely to come down and they did their best to see that they were safe. If ever there was any doubt the beams were removed completely so that there would be no fouling of falls. If the foreman had known the men were going to work under the hatches he would have had the beams removed at once, but it was a case of zeal on the part of the workers, who wanted to get out as much tonnage as possible before they went to their dinner.

The defendant firm, said Mr. Cafferata, had been in existence for 26 years and dealt with 70 to 100 ships or more a year. The work at the docks at the time was congested and often had to be done in a hurry and everyone was very much overworked. This was the first occasion that the firm had been brought before the Court in regard to an accident of this type. They were very proud of their good record and had always done their best for their men, the foreman being instructed to be most careful in regard to the securing of hatch beams. This accident was due to a set of circumstances over which the company had no control.

The Stipendiary Magistrate, in finding the firm guilty, said he would take into consideration that they were a firm of good credit. He therefore imposed a small penalty of £10 with £5 13s. 6d. costs.

## Notable Port Personalities

### L—Mr. C. A. Bertel

**Mr. C. A. Bertel**, President of the Board of Commissioners of the Port of New Orleans, and its youngest member, is a native of New Orleans. He has made his own way in the world, beginning as an office boy with the Board under Mr. Tiley S. McChesney, Assistant Secretary and Treasurer of the Board, in 1915. He was an employee of the Board for twenty years, in various departments, and gained much practical experience through this work.



**Mr. C. A. BERTEL,**  
President of the Board of Commissioners of the  
Port of New Orleans

While assistant superintendent of the Public Cotton Warehouse, Mr. Bertel installed what is known as the Bertel Patented System for the handling and storage of cotton, a system that is widely known in the cotton trade.

In 1936 Mr. Bertel left the Board to organise Cotton Trade Warehouses, Inc., of which he is President and General Manager. He is also Secretary-Treasurer of the Columbia Paper Company, one of the largest paper and merchandise companies of New Orleans. He is Past President and member of the Executive Committee of the National Warehouse Association and one of the founders of the National Cotton Council, being a member of its Board of Directors.

Mr. Bertel was Vice-Chairman of the Citizens' Advisory Committee which studied port conditions and operations, making their report to the former Governor of Louisiana, Mr. Sam Houston Jones, and he was one of those who sponsored the legislation designed to free the Board from politics by providing for replacement of members through recommendation of the New Orleans civic and trade bodies.

Mr. Bertel was one of the first nominees of Governor Jones to the Board of Port Commissioners in 1940. His term of office expires in 1946.

## St. Ives Harbour of Refuge

### Projected Development

Through the courtesy of Messrs. Lewis & Duvivier, Engineers to the Royal National Lifeboat Institution, we are enabled to show a plan of the proposed harbour and breakwater at St. Ives, submitted by them to Capt. Beechman, M.P. for the St. Ives Division of Cornwall.

The proposed breakwater will start at Bamaluz Point. The inner end will be curved in plan, the general alignment being East and West until the 35-ft. contour is reached. Beyond this point the breakwater will continue in a straight line in a South-easterly direction for a distance of 800-ft., terminating in a depth of 40-ft. of water at low-water spring tides.

The contours on the plan represent depths in feet below Mean Low Water of Spring Tides and it will be seen that there will be an ample area and depth of water under the lee of the breakwater to provide shelter for fishing boats and coastal vessels, even at lowest low water.

The area of sheltered water at low tide will be approximately 16 acres.

The breakwater will be costly to construct owing to the great depth of water in which it is constructed (35 to 40-ft. below low water of spring tides) and to the substantial range of tide at St. Ives (23-ft. 6-in. at springs).

It is not practicable to move it closer in-shore and thus reduce the depth without substantially curtailing the sheltered area.

A preliminary estimate, based upon the use of reinforced concrete caissons which would be built at the nearest convenient port, towed to St. Ives and sunk end to end on a previously-constructed bank of rubble and filled with concrete and sand, amounted to nearly three-quarters-of-a-million pounds. It is hoped, however, that other means may be available after the war whereby the cost of construction could be reduced to rather less than £500,000.

There will be a tendency for siltation to occur in the shallow water beyond the end of the old crib-work breakwater (now derelict) and a certain amount of routine dredging may be necessary from time to time.

There is indicated on the plan a suitable site for a new life-boat station from which a 46-ft. life-boat could be launched at all states of the tide and in all weathers.

### German Appointment for Port of London.

It is stated on the authority of a Special Correspondent of the *Birmingham Post* that the German Commander, Ehrlich, of the Port of Bordeaux immediately after its occupation in 1940 by the German Forces, was nominated as "Director of the Port of London," and left the French port to receive his special orders. The subsequent movements and ultimate fate of Kommandant Ehrlich are not known, but certainly he did not manage to take up his London appointment.

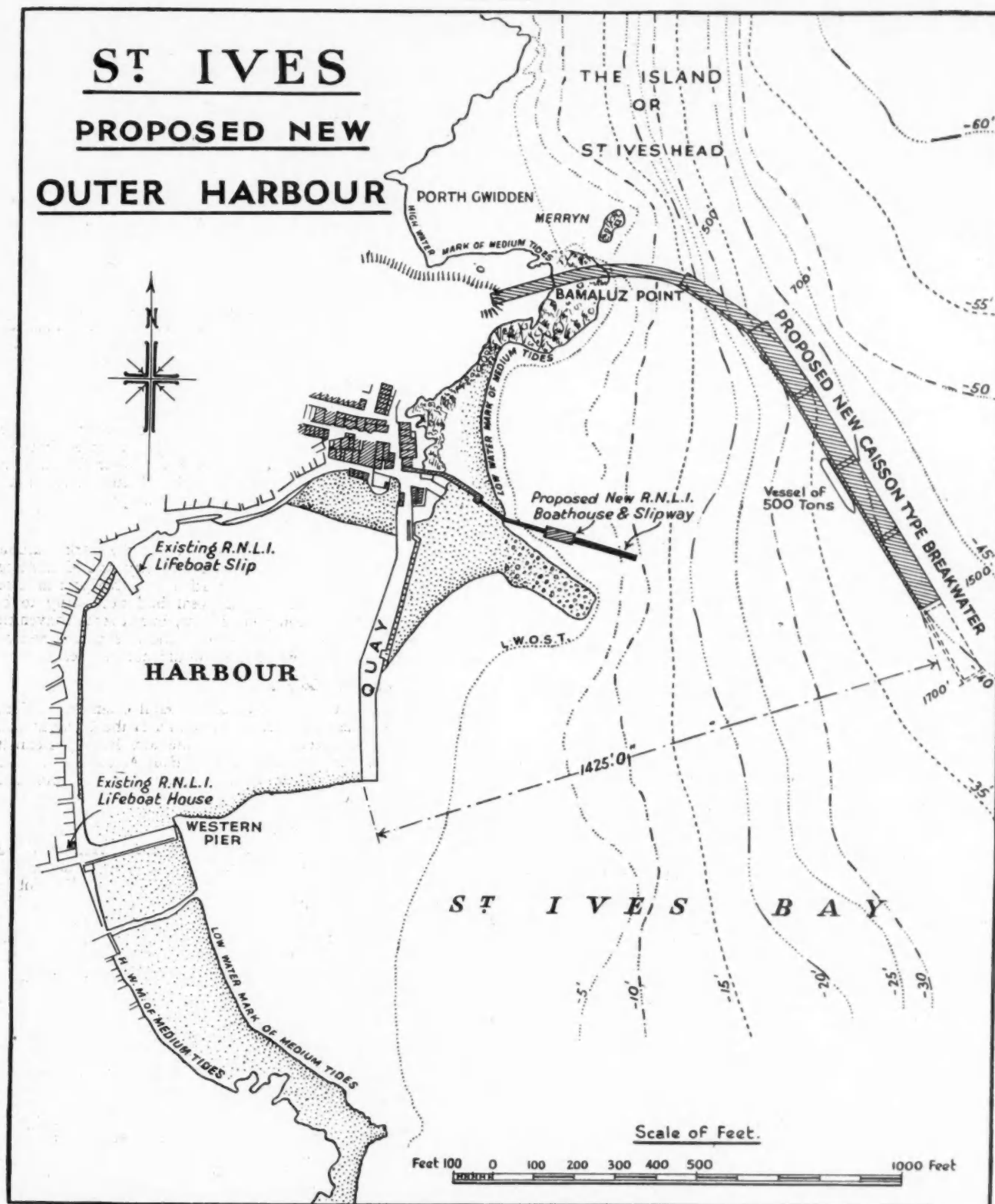
### Sharpness Docks.

The Report of the Directors of the Sharpness Docks and Gloucester and Birmingham Navigation Company, states that for reasons of national security the Directors have not been permitted to report on the traffic of the Port since 1939. The Government, however, have recently relaxed the restrictions in this respect, and accordingly, the Directors are now able to report the following tonnages of imports and exports:—

Year	Imports	Exports	Total Tonnage
1939	769,084	28,480	797,564
1940	854,822	25,110	879,932
1941	903,507	13,556	917,063
1942	903,592	9,887	913,479
1943	948,213	56,147	1,004,360
1944	776,011	162,161	938,172

The Revenue for the year amounts to £62,250 to which are added the balances in respect of previous control periods amounting to £21,039 8s. 6d.





Proposed Harbour of Refuge at St. Ives

## Notes of the Month

### Mersey Docks Bill.

The Mersey Docks and Harbour Board Bill, returned from the House of Lords, was read for a third time in the House of Commons on May 18th.

### Undamaged Berths at German Ports.

It is reported that damage to shipping berths at Bremerhaven and Wesermünde is less serious than was expected and berths for 13 Liberty Ships are stated to be available.

### Retirement of Dry Docks Manager.

Mr. Edmund Cameron, M.B.E., after long service with the firm, has retired from the managership of the dry dock department of John Readhead and Sons, Ltd., South Shields.

### New Pier at Saudi Arabian Port.

A pier recently constructed at Ras Tanura in Saudi Arabia is now reported to be in working condition. The average rate of cargo handled at the port is between 500 and 800 tons daily *ex* ship berthed at the pier, and 300 tons *ex* ship at anchorage.

### New Port Authority Member.

To fill the vacancy created by the death of Mr. C. E. Alexander, Mr. Geoffrey Hinton, director of Temple Steamship Company and Dornoch Shipping Company, has been co-opted to the Board of the Port of London Authority.

### Nairn Harbour Repairs.

Nairn Town Council has advised the Department of Fisheries in Edinburgh that they cannot meet the cost of £40,000 at which repairs to the harbour are estimated. The harbour has been, the Council states, a constant drain on the town's finances and they do not plan to spend more money on the scheme.

### Mersey Dockers in the War Effort.

Mr. R. J. Hodges, general manager and secretary of the Mersey Docks and Harbour Board, has recently stated in an address to employees of the Board that since September, 1939, some 70 million tons of cargo had been handled by dock workers over the quays of the Port of Liverpool.

### Clyde Navigation Trust.

Mr. James Gilchrist, a director of Messrs. Barclay, Curle & Co., Ltd., the shipbuilding firm, has been appointed a Trustee in place of Mr. William Tod, who retired from that position in April, after being convenor of the Stores Committee from 1934 and an electors' representative since 1929.

### War Damage at the Port of Rotterdam.

A despatch from Reuter's correspondent states that the damage wrought in the Port of Rotterdam whether by German forces or by R.A.F. bombing, is estimated to cost up to £50,000,000 to make good. Damage to port structures alone is put at nearly £10,000,000. Appliances for the discharge of bulk cargo, such as coal, coke and phosphates have all been destroyed. On the other hand certain equipment, such as floating and electric cranes, escaped destruction through being transferred to Hamburg and Lübeck.

### Impending Developments at the Port of Ghent.

Improvements in the approaches to the Port of Ghent are in contemplation. A new sea lock is planned at Terneuzen and the Terneuzen-Ghent Canal is to be straightened, widened and deepened so as to permit of the passage of ships of 25,000 tons. The new lock will be 615-ft. long and 85-ft. wide with a depth of 31-ft. of water over entrance sill. The number of docks at Ghent is to be increased. A new dock, designated the Siffer Dock, which was in hand at the outbreak of the war, will be proceeded with. It will have a length of 7,800-ft. and a width of 655-ft. Further to the north, the provision of another dock of the same size is under consideration.

### Proposed Free Zone for the Port of Lisbon.

The Portuguese Industrial Association have approached the National Government suggesting the appropriation of part of the Port of Lisbon to the purposes of a Free Trade Zone.

### Rehabilitation of the Port of Hamburg.

Considerable progress is reported in the restoration of shipping facilities at the Port of Hamburg and it is expected that certain berths will be available for ocean-going vessels immediately.

### British Mercantile Shipbuilding.

A detailed statement published in a recent issue of *Lloyd's List*, shows that over 5,700,000 tons gross of shipping were completed at British Yards during the war down to the end of 1944.

### Damage to Swansea Dry Dock.

In April an exceptionally high tide did damage to the gates of the Cambrian Dry Dock at Swansea, bursting them open under the pressure of the water. It has been decided to instal two steel gates at an estimated cost of £5,500 and the work of replacement is in hand.

### River Wear Commission.

In succession to Mr. T. W. Greenwell, who announced his retirement at the annual meeting in March, Mr. Robin A. Bartram has been elected vice-chairman of the River Wear Commission. A new Commissioner in the person of Mr. Walter B. Allan has been elected to represent the shipowners of the port.

### Proposed Free Port at Cork.

In a letter which was read at a meeting of the Cork Harbour Commissioners, the Eire Minister for Industry and Commerce, referring to the suggestion of the creation of a free port in Eire, said that consideration of this proposal had necessarily to be postponed owing to emergency conditions, but at some convenient time the question would be reconsidered, and in such reconsideration the claims of the Port of Cork would not be overlooked.

### Humber Conservancy Board.

Mr. William Fenton, President of the Hull Chamber of Commerce in 1943-4, has been elected Chairman of the Humber Conservancy Board in succession to the late Mr. Bentley Bennett. Mr. Fenton is a past chairman of the Hull Association of Port Labour Employers and "alternate chairman" of the Joint Port Working Committee.

### Death of Former Port Manager.

The death has taken place in Manchester of Mr. Herbert Wends Gibson, O.B.E., formerly general manager of the Manchester Ship Canal Company, the port authority for Manchester. Mr. Gibson was associated with the port from 1892, when he went there from Plymouth as assistant to the late Mr. Marshall Stevens, one of the founders of the Ship Canal. In 1894, he was appointed chief traffic agent, in 1916, he became chief superintendent, and finally in 1934, general manager. He retired in 1936 after 44 years service with the company.

### New Floating Caisson at Aberdeen.

On account of the defective condition of a pair of dock entrance gates at Aberdeen, a floating caisson has been provided for closing the entrance, pending the installation of new gates, which is expected to take place in the early Autumn. The caisson, of approximately 130 tons deadweight, has been designed by the Harbour Engineer, Mr. John Anderson, M.Inst.C.E., and constructed by Messrs. P. and W. Maclellan, Ltd., of Glasgow. It was assembled and launched by Messrs. Alex. Hall and Co., Aberdeen. The caisson is berthed at a small jetty, constructed for the purpose, within 100-ft. of the clapping face of the entrance, and the operation of warping it into position can be carried out in 8 to 10 minutes.

## Methods of Levying Charges for Services to Shipping\*

Discussion by the Institution of Naval Architects\*

(Continued from page 13)

### Written Contributions to the Discussion

**Rear-Admiral E. S. Land, C.B.E., U.S.N. :** I believe this paper to be most timely and a subject of the utmost importance.

The payment of dues by ships for harbour, pilotage and waterway services is obviously a complex problem. The question as to whether the charges for services should be based upon the ability of the vessel to pay or the actual cost of services rendered is debateable. There is no question, however, that the present system has, as Mr. A. Murray Stephen pointed out, "reached such a fine point of delineation as to be ridiculous . . ." and that "shipowners and shipbuilders are forced to produce ships which are in many respects neither as efficient nor as seaworthy as they might be."

The problems, as pointed out by the author, are, first, to establish a fair relative chargeable unit for each vessel; and second, to establish a fair rate per unit to be charged each vessel for each of the various services rendered.

We are to-day in the U.S.A. making a study of this subject with the above points in mind and, while we are not yet in a position to make a definite statement as to the outcome of our study, it is believed that the philosophy of the author's paper is excellent and it will be of inestimable value in the final solution of this problem.

**Professor A. M. Robb, D.Sc. :** In view of some remarks in the discussion on the attitude of shipowners towards revision of tonnage regulations it may be apposite to refer to a specific case. In search of exact information as to the extent of tonnage dues a visit was made to a shipowner. While awaiting the collection of the desired figures the shipowner suggested that there is no need to bother with revision of tonnage measurement—differences that could be made would not matter; seemingly he was thinking only of financial differences. When, however, it was pointed out to him that a proper revision of tonnage measurement would mean the complete scrapping of the conception of exempted spaces and of all the regulations governing closing appliances the attitude changed—indifference became whole-hearted support.

So it would seem that in presenting the case for revision of measurement regulations the naval architect should concentrate on the seaworthiness aspect. The curiosities and absurdities of the tonnage regulations, capacities of boatswain's store, and extents of casings to be included in machinery spaces, for example, are petty annoyances. The regulations which concede the exemption from tonnage of spaces which should be enclosed and completely watertight are things of evil.

In view of other remarks in the discussion, and of a remark in the paper, on the question whether dues should be based on services rendered or on ability to pay, it would seem proper to suggest that the differential rating adopted in, at least, some ports is a means of effecting the compromise to which the author refers in the third paragraph. For example, an ore cargo from Spain is relatively low in value and earns relatively low freight, as compared with, say, a fruit cargo from South Africa, distance as well as value of cargo entering into the consideration. Hence rating depending upon port of origin. Since the compromise seems to be a reasonable attitude in a case where an exact yardstick for the measurement of dues is not obtainable it would seem proper to maintain it whatever be a future modification of tonnage laws and bases for port charges. It might, however, be desirable to show more clearly than at present that such a compromise underlies the determination of Port and Harbour Rates. That would involve a basic rate founded upon a measurement figure for the ship, plus a charge based on nature, or value, of the

cargo, or on the number of passengers, with separate charges for inward and outward shipments.

It is probably impossible to base the supplementary charge on the exact value of the cargo, and so it would seem to be necessary to have recourse to consideration of ports of origin and of destination, with subsidiary consideration to the nature of the cargo. For instance, for cargoes from the St. Lawrence there might be a differentiation between bulk grain and general cargo.

A variation from present practice might be to relate to time in port the basic charge representing the cost of services rendered. At present the normal dues cover a period in port which may be ten days at one place and thirty days at another. If that charge were placed on a time basis it might dispense, to some extent, with the differential rating allowed to coast-wise and short-sea traders, it would make allowance for a ship entering with cargo and leaving in ballast, or entering in ballast and leaving with cargo, and it would take account of a stay in port for repairs. Presumably it would not be thought necessary to base the charges on time from date of arrival but rather to base them on time from occupation of a berth.

Whether the suggestion of a basic charge plus a supplementary charge is feasible or not may be a matter for discussion. Obviously it is not proper to strain for exact justice in the levying of charges to the extent of causing an increase in the rates because of inflated costs of book-keeping. Nor does the incidence of the rates seem, on the whole, to be heavy enough to justify more than reasonable approximation in the levying of them. The figures to which reference has been made above were obtained for two typical voyages of tramp steamers, one short voyage, one long voyage. For a voyage from the United Kingdom to the St. Lawrence and back, loaded both ways, the total receipts were practically £5,700. The harbour dues were just over £370, representing rather more than 6½ per cent. of the receipts. If light dues amounting to £87 odd be added the percentage rises to just over 8. The long voyage was in three stages: United Kingdom to Alexandria, Port Said to Calcutta, and Calcutta to United Kingdom by way of the Cape. The total receipts were practically £40,700 and the total dues, excluding lights but including Suez Canal, were rather more than £2,600, or just under 6½ per cent. If the Canal dues at £1,440 odd be taken out of the £2,600 the percentage for the remainder is less than three.

So far the basis on which the ship as distinct from the cargo should be assessed has been left out of the consideration, although that is the matter which most directly concerns the naval architect. It has so far been left out in order that the general problem might be viewed as a whole. On the general considerations outlined above it should not be necessary to discuss any attempt towards reaching absolute equity. If the principle of the compromise between services rendered and ability to pay is proper, and if some such avowed adoption of the compromise as has been outlined above can be adopted, it should be possible to levy the basic charge on a simple scale. Clearly, length must be a factor. But L.B.P. is an awkward measurement and would require in the end the adoption of an arbitrary percentage of the over-all length. Therefore it would seem proper to start with over-all length, including any superstructure. Depth or draught is also an obvious factor. In this connection, it has been stated by an authority on the construction of harbours and docks that the cost of the quay varies about as the cube of the depth. That fact would suggest including a power of the depth or draught. But since simplicity rather than extreme accuracy is the goal, it would seem to be justifiable to take into the reckoning only the assigned load draught. Breadth does not appear to be a necessary factor. Hence a measurement figure might simply be the product of the over-all length and the assigned load draught. One advantage of such a figure is that it would not offer any inducement for the development of freak types of ship in order to cheat a measurement rule. Board of Trade surveyors would not spend much time in the making of the necessary measurements; but they would be required to certify that crew accommodation complied with an absolute standard.

But any basic modification of tonnage measurement, however effected, must entail modification of the Freeboard Regulations. The intermingling of tonnage and freeboard does not seem to have been adequately recognised in the discussion. That consideration

\* Reproduced by permission from the Journal of the Institution. The Paper on this subject by Dr. John Tutin appeared in the issue of this Journal for October, 1944.



### Methods of Levying Charges for Services to Shipping—continued

should not debar the alteration of tonnage regulations; it should hasten it.

**Mr. E. F. Spanner:** This paper should be read in conjunction with Mr. Blocksidge's paper, "Tonnage Registration and its Application to the Measurement of Ships"—read before the Institution in 1925—and the discussion on that paper.

The author has done an extremely useful piece of research in bringing out, quite clearly, the fact that there is no uniformity whatever between the methods now adopted—by revenue-seeking parties, i.e. State and other official bodies, Canal, Dock and Harbour Authorities, and other concerns and organisations—for calculating fees, dues and charges, despite the existence of tonnage regulations established with a view to forming stable and equitable bases for working out amounts to be paid for services rendered.

The present position is that, on the one hand, it is generally agreed that the existing Statutory Tonnage Regulations are (1) intricate and confusing (2) the very reverse of helpful to naval architects, and (3) productive of designs which are far more noteworthy for ingenuity in evading liability for charges, fees and dues than for plain practical common sense; while, on the other hand, as the author's research discloses, not only are there wide divergences between the use made by the various revenue-seeking parties of the statutory tonnage figures, but there are also inherent difficulties in devising logical schemes of charges based on those statutory figures for the great variety of services rendered by these several parties.

In my opinion, a clean break should be made and this tonnage business tackled with only one object in view—that of eliminating all factors acting against the production of the "best possible" designs of ships for any and every type of service.

How the various revenue-seeking parties decide to calculate their dues always has been, is now, and always will be, a matter to be decided by each individual party, and any attempt to impose upon these parties uniform but entirely arbitrary systems of calculating charges based upon a quasi-logical dimension such as the author's "Rateable Length," is, I think, foredoomed to failure.

If this is agreed, it follows that it will be unwise to jeopardize the efforts of naval architects to secure best possible, common-sense designs, by requiring them to attempt to achieve lowest "Rateable Lengths" for proposed new ships in place of lowest tonnage figures calculated according to existing official requirements.

Taking a bold view, I suggest that revenue-seeking parties would very quickly devise new table of charges fees and dues, if, at a stroke, all present tonnage figures were cancelled and these parties left with only one numeral upon which to base their calculations, i.e.,  $L \times B \times d$ . (In the discussion on Mr. Blocksidge's paper I suggested that a suitable numeral would be  $L \times B \times d/\text{coefficient}$ , but I see no reason why the coefficient should not be "unity").

The author argues, that if a flat rate was adopted, such a numeral would be unfair between geometrically similar ships, but this argument recoils upon itself since, in the first place, no one suggests that a flat rate should apply throughout the scale, while, even if it did so apply, it would leave charges equitable as between ships of about the same size—and from the commercial point of view that is the really important point.

Further, it is worth pointing out that, from this single numeral  $L \times B \times d$ , two other dependent numerals can be directly derived, i.e.,  $\sqrt{L \times B \times d}$  and  $\sqrt[3]{L \times B \times d}$ .

Using flat rates in conjunction with these basic charging figures  $L \times B \times d$ ,  $\sqrt{L \times B \times d}$ , and  $\sqrt[3]{L \times B \times d}$ , revenue-seeking parties should not even find it an insuperable problem to arrive at charge, fees and dues which would be equitable between craft of widely different sizes, as well as between craft of similar dimensions.

Quoting from the contribution I made to Mr. Blocksidge's paper in 1925, "No matter how the tonnage figure is arrived at, port schedules will be varied and complicated. Let us therefore have simple tonnage rules and confine the complications to the schedules."

The proposal outlined in the foregoing leaves the naval architect free to give of his best without need of "artificial distortion" to achieve low charges, fees and dues.

At the same time it provides all revenue-seeking parties with three very simple and straightforward numerals with which they can juggle to suit their individual circumstances.

**Mr. W. C. Warwick:** I have long held the view that some simplification, as well as unification, of the basis on which dues are levied both for dock charges and for canal dues, would be desirable, and exchanges of view amongst the various experts qualified to deal with this somewhat complicated matter is, I think, all to the good, so that agreed proposals may be available for consideration with the appropriate authorities when it is possible to deal with the matter after the war.

**Mr. H. A. Wilson:** The author offers a very complete and interesting review of the various charges which are incurred by ships in one way or another. These all have their effect in the ultimate cost of ship operation, but there is no doubt that because they recur so often the most important charges are harbour and lights dues, and in certain trades, canal dues. For this reason my remarks are confined exclusively to the question of tonnage measurement. The author does not specifically say that he supports the principle enunciated by Mr. Murray Stephen in his Presidential Address to the Institution of Engineers and Shipbuilders in Scotland, Vol. 87, viz., that charges should be assessed on the cost of the service rendered to the ship, but it seems reasonable to affirm that he is in agreement. There have also appeared in the Press recently references to the effect that Rear-Admiral Emory S. Land, Chairman of the U.S. Maritime Commission, is strongly of opinion that tonnage regulations should be revised, and indicating that he is very much in accord with Mr. Murray Stephen's ideas. The previous method of assessing dues was on the ship's capacity for carrying cargo or passengers, i.e., her ability to pay. Expressed in the simplest terms this is tantamount to the shopkeeper saying to his customer, "Let's see how much money you've got in your pocket and then I'll tell you the price." The position is, undoubtedly, that the Dock and other Authorities are selling something, i.e., dock facilities and services, and I think there can be no gainsaying the soundness of the principle, "This is what we have to sell, and the price is so much." Having reflected upon the problem in this elementary way, I strongly support the principle enunciated by Mr. Murray Stephen and inferred in this paper. The services and facilities offered by Dock and other Authorities are, to all practical purposes, directly proportional to the size of the vessel involved, and on this premise Mr. Murray Stephen enunciates a very simple method of assessing the size of the vessel, based on length, breadth, draught and a coefficient. The author, however, goes a step further, suggesting that charges should be assessed on a new basis, which he calls "Rateable Length." This involves additional complications, which I would be very hesitant to support. Of the three "tonnages" applicable to ship measurement, the two most commonly employed in this country are gross and nett, but the story does not end there. Many ships are also measured for both Panama and Suez Canal tonnages, and I believe there are still one or two countries which insist on their own methods of measurement. There is, however, some little virtue in the figures used for gross and nett tonnage in that they convey quite a good picture of the size of the ship in statutory tons. Nevertheless, with any new system of measurement it should not be necessary to have more than one figure of measurement. Mr. Murray Stephen's suggested employment of length, breadth, draught and a coefficient could be arranged to produce a figure approximating to either one or other of the old tonnages but it would not describe any particular kind of tonnage, and the relationship to either displacement, deadweight, and any other "operational" function of the ship would be a little remote. The author's proposed "Rateable Length" would be merely a numeral. The connection with the size of the ship would be still more remote and it would not readily convey the quality of "size" to the mind. In putting forward the "Rateable Length" basis, he expresses the opinion that a 600-ft. ship does not make 27 times as great a demand on port or canal facilities as a 200-ft. ship, but this, I think, raises questions

### Methods of Levying Charges for Services to Shipping—continued

which might result in a veritable hornets' nest. Before accepting this dictum I think it would be useful to check up on the existing distribution of charges as between the large and the small ship. Figures for displacement for a large variety of vessels are not readily available, but in vessels of similar type the relationship between displacement and deadweight is reasonably constant, although not quite so. Fig. A shows the relationship of deadweight to G.R.T. over a range of tankers from just over 200-ft. to well over 500-ft. length, and it will be seen from this that on the average the ratio is practically constant over the full range. Fig. B shows the relationship of deadweight to N.R.T. for the same series of tankers. It will be seen that a much greater degree of departure from uniformity than the first chart, which must reflect differences in "deductions" or possibly a greater or less degree of ingenuity on the part of the Naval Architect or Marine Superintendent in finding his way through the loopholes of the present Tonnage Measurement Regulations. In so far as G.R.T. bears a reasonably close relationship to the product of length  $\times$  depth  $\times$  breadth, a new tonnage based on these three functions would cause the minimum disturbance in the distribu-

fact correct. All new vessels, of whatsoever nationality, should be measured on this basis, and during the "change-over" period it is suggested that owners should have the option of maintaining their present tonnages or having them remeasured on the new basis. This might produce some anomalies, possibly a few startling anomalies, but we cannot make omelettes without breaking eggs. Alternatively, during the interregnum the Dock Authorities could possibly provide two scales of charges, viz., one for new vessels and one for vessels measured under the old system. I would also like to suggest that apart from the problem of shelter deckers, all the old questions involved in the measurement of deck erections, and their subsequent deductions where occupied by crew, deductions for machinery, spaces, etc., be forgotten. The demand they make on any facilities offered by the port is quite negligible.

I am not in a position to speak with first-hand knowledge of the passenger liner problem, but on first inspection there seems no reason why the same should not equally apply in every case. Big, fast, passenger liners have very large engine-rooms, involving big deductions from the gross, but these are usually associated

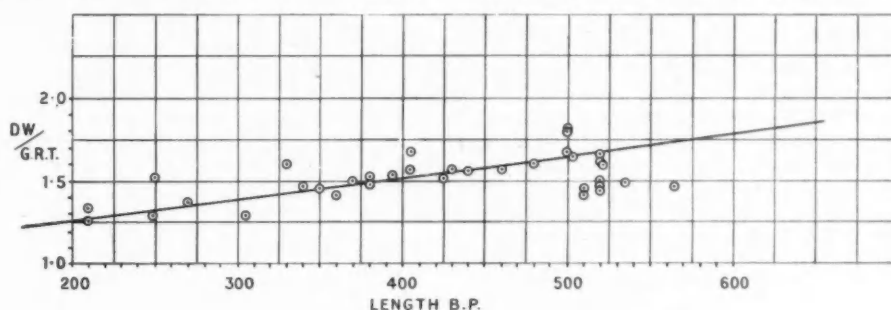


Fig. A

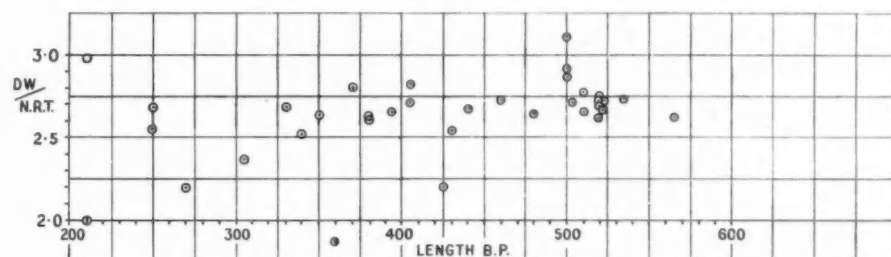


Fig. B

tion of charges as between ship and ship and would avoid any risk of plunging us into the highly controversial principle raised by the author. Actually, in ships of similar general design the ratio of displacement to deadweight decreases slightly with increase in size, and this would shade the charges slightly in favour of the big ship, though not perhaps so much as the author may have in mind. I feel, however, that a very good case could be made out for the use of either actual or moulded displacement tonnage for the purpose, and such figure would in my view bear a more immediate and direct relationship to the ship than either Mr. Murray Stephen's or the author's proposals. It would mean that the tonnage figure for all ships would be quantitatively much larger (in most cases one additional integer) than those we have been accustomed to use in the past, but it would be simpler, and if the Docks Authorities did not like working with such large figures it would not be a difficult matter to re-assess their charges on so much per 100 tons displacement. It may be argued that Government Officials have no ready means of verifying displacement, but I think this can be very easily overcome.

I suggest that as each new ship is built a certificate should be supplied by the builder declaring the vessel's displacement on her summer load draught, the certificate to be accompanied by a half-body plan with dimensioned offsets at specified bulkheads or stations, so that any official could in a matter of an hour or so quite easily verify whether the dimensioned half-body plan was in

with very big passenger-carrying deck erections, and I think if these were offset one against the other nobody would suffer any great hardship. Speaking of engine-room deductions in more detail, the present war has brought out quite forcibly that if tankers with long engine-rooms are torpedoed anywhere near the machinery space, when in the laden condition, their chances of survival are negligible. Progress in the design of propelling machinery has permitted shorter and shorter engine-rooms to be designed, but if the engine-room measurements fall below the Statutory 13 per cent. of the gross it becomes necessary to add which is euphemistically known as "light and air," which means an eventual increase in both gross and nett tonnages. That is the price the owner has to pay for making his ship safer.

It is not my intention to catalogue all the anachronisms that arise from the present tonnage measurement regulations, but the following are examples. It is commonly known that many a designer of tankers is tempted to put in deeper bottom longitudinals than are structurally desirable as an expedient towards securing a lower tonnage measurement. If his design is critically analysed and as a result he puts in shallower longitudinals of equivalent modulus, he may well find himself in difficulties again with his p.p. deduction. If, obeying the behest of the Authorities to provide better or more spacious accommodation for the crew, he increases the deck erections, he may find himself again in the same ditch.

### *Methods of Levying Charges for Services to Shipping—continued*

The two foregoing examples deal with particular aspects of the type of ship in which I am more directly interested, viz., the tanker, but there are point of more general interest, of which the following is one. We all know that crews' living accommodation is added into the gross tonnage and afterwards deducted, also that in a compartment comprising bathroom or wash place and lavatory, the former is added and deducted whereas the latter is exempt. In effect, a sailor in retiring for the night or keeping himself clean can only do so at the expense of the owner, but if he uses the lavatory, he can feel that he is thereby enjoying the blessings of the official mind in the cultivation of regular habits. No doubt there is some historical reason for this differentiation, but it is not business. The official mind may possibly reply that as the living accommodation is again deducted from the gross, the ship owner is no worse off, but if the poor owner is on the verge of the 13 per cent. for his p.p. deduction, then the larger and more commodious he makes the bathroom or wash place, or any other accommodation spaces, the more "light and air" he has to add in order to secure the 32 per cent. The penalty, nevertheless, is that both his gross and nett tonnages are increased. Mr. Murray Stephen has dealt very adequately with the vexed question of the "shelter decker," but any suggestion that this expedient, this "fake" (for that is what it really is), should be stopped, may well raise a cry from the coaster owners, some of whom have developed the shelter deck idea to the "nth" degree. However, if we are pleading for simplicity and straightforwardness I don't think we can have it both ways. I think we must face the facts and produce the most seaworthy ships we can, and if, for example, the coaster owners suffer because their ships make so many calls in the course of the year, the correct approach would be to scale down the dock charges for this particular kind of vessel.

I have read this paper with much interest, but my remarks will indicate that I am very strongly in favour of the utmost simplicity that can be achieved. What I think is of particular importance is that the problem should be tackled now, and made completely international in character. By this I mean that it should also include the Suez and Panama Canal authorities, and any other countries which have their own special methods of tonnage measurement. The United States of America and the United Kingdom have beyond any question the largest merchant fleets afloat, and with the support indicated by Rear-Admiral Land, also the Resolution passed by the Shipbuilding Conference in February, 1944, I think now is the time for sweeping away the conglomeration of anomalies that have accumulated throughout the years. We should completely and wholly abandon any thought of tinkering about with the present regulations, which do not produce a fair assessment of charges as between ship and ship and waste the life-work of an army of skilled surveyors who are much more needed in productive effort. All the measurement data necessary for evaluating the size of the ship in any agreed kind of unit is already in the builders' hands and it is certainly a futile waste of man-power and human effort to go through another series of measurements in some other way for no good purpose. One outstanding and immediate benefit of simplifying tonnage measurement would be that, for special trades, ships could be readily designed to fulfil their functions in the most efficient manner. The old problems associated with the special iron ore carrier, London River collier, etc., could be consigned to the limbo of the past. I feel confident that despite our present pre-occupations it should not be beyond the bounds of human ingenuity to devise a comparatively simple formula which would be fair and just to everybody.

**Mr. H. A. Carré:** Within the compass of this short paper the author has effectively epitomized the current methods of making charges for services to shipping, and he puts forward a concept of "rateable length," which merits general support from ship owners, shipbuilders and surveyors.

The writer's experience of ship repair cost estimating over a considerable period has been that it is difficult to compare costs as between different ports and authorities, and it is not easy to assess the charges of an individual authority. The rateable length numeral would be of great assistance in enabling true comparisons to be made.

The author's suggestion that such a numeral should be obtained by adding the terms *L B d* after applying "weighted" coefficients, appears to be fundamentally sound. It would, however, be very desirable for the numeral to appear in Lloyd's Register. This would enable reasonably correct cost estimates to be made before arrival of vessel. (In passing, the writer would put forward a plea that load displacement might be included in the information given in the Register).

A further simplification would be to neglect light and intermediate draughts and base the draught factor on the summer load-line draught for all services. The advantage of this method would be that charges would be known in advance. It would be interesting to know if there is any practical objection.

Assuming acceptance of the conception of rateable length as a basis, it is also desirable to secure uniformity in method of charging. Dry-dock charges may be cited as a case in point. These vary considerably in different ports. There is no standard basis; charges may vary according to the dock occupied or size of vessel dealt with, e.g.:

**London**—based generally on gross tonnage, with, (a) a charge for docking, pumping and undocking; (b) thereafter a daily rent, and (c) special charges for certain docks.

**Liverpool**—based on net tonnage, with (a) a charge for first two tides; (b) thereafter one charge from 12 to 24 tides, which is repeated every neap (24 tides); (c) extra in respect of certain docks and deep draughts.

**Southampton**—based on gross tonnage, with (a) a charge for docking, pumping and undocking; (b) thereafter a daily rent which alters after 7 or 14 days, depending upon tonnage group of vessel.

It will be seen from the above that little or no attempt is made to relate the charges to the cost incurred, as obviously less pumping is required in a given dry-dock to deal with a large vessel than to dock down a small ship; the principle adopted being to charge according to "capacity to pay." The writer hopes that in conjunction with a more reasonable basis of assessment of charges, some improvement could be effected in the details. An apparently inclusive tariff for use of dry-dock, does not always cover the provision of bilge blocks, foot blocks, fire hose, gangways, use of dockside capstans for warping, and sundry other items which are necessary ancillaries, without which the dry-dock cannot be said to be suitable for its purpose.

Such items may be overlooked when preparing an estimate, but will certainly not be omitted from the dock owners' account, and there seems no valid reason why the dock tariff should not be an inclusive figure.

Crane charges, even in the same port, are frequently bewildering in their variety.

The rates quoted for crane hire may be dependent upon many factors, viz.:

(a) Type of crane used (steam, hydraulic, electric); (b) location (wet berth or graving dock); (c) lifting capacity (as distinct from load to be lifted); (d) purpose (cargo, equipment, stores, booms, etc.); (e) weight lifted (this may be charged "per lift" or "per ton," which latter rate may vary according to the total weight dealt with); (f) time taken (hourly or daily rates of hire, varying according to total time taken); (g) time taken considered in conjunction with weight lifted; (h) extras (slings, transportation of crane, overtime, etc.).

It can be seen that unless the precise crane required, and purpose for which it is to be used are known in advance, charges cannot be estimated with confidence. It appears to the writer that the amount of detailed work involved in preparing tariff schedules of such a nature as above, is only necessary if each item of dock equipment is considered from the accountancy side as a separate unit. As the purpose of such equipment is to deal with ships and not to provide elaborate tabulated statements, it is suggested that a more rational method of charging might be adopted.

(To be continued)

### **Port Management Appointment.**

Mr. Helge Linder has been appointed manager of the Port of Stockholm for a period of six years from the 1st inst.



# Geodetic and Tidal Levels

## *Their Values and Inter-Relationship*

By Captain E. C. SHANKLAND, R.N.R. (late River Superintendent, Port of London Authority).

IN the report on the second geodetic levelling of England and Wales there is an explanatory note on the prolongation of levels through the spheroid. This work is not available for the writer to quote further from, but he would remind readers that the spheroid on which we live, with its oblate formation, governs the transference of levels over long distances, and with relative influences of a refined character which the Tidal Officer need not study unless he chooses to do so. We have in England two places of origin for land and tidal levels—Liverpool and Newlyn; and these points of reference are used by observers some hundreds of miles from the points of origin. They are intimate to tidal and engineering work.

### Ordnance Datum and Newlyn Datum

Ordnance datum in Great Britain is approximately Mean Sea Level at Liverpool, the level being calculated from one month's tidal observations, 1844. The Mean Sea Level at Liverpool, calculated from 8 years' tidal observations between 1857 and 1902 is 0.34-ft. above Ordnance Datum. The writer would emphasise this early relation of land levels to tidal levels because it runs through the discourse which follows.

In 1912, the new levelling of Great Britain referred to in the first paragraph of this article was commenced. It was soon found that for several reasons errors existed in the earlier network of levels. They were probably instrumental, those of personal equation, of sinkage of bench marks, and possibly of uprising of others due to pressure variation of a natural or of an artificial character. The concrete raft upon which the County Hall at Westminster is erected rises and falls with the hydraulic pressures which lie under it and which flow up and down the Thames. Observation of the levels of the Bank of England have shown that the behaviour of this structure, which one associates with financial stability, is peculiar. The new levelling, started in 1915, was linked with Mean Sea Level at Newlyn on the Cornish peninsula which is open to the deep Atlantic. Six years' tides (1915-21) were used in the computation. The full results of this levelling are not yet available. The Admiralty consequently use references to the old level of Ordnance Datum in the Tide Tables. The hydrographic surveyor constructing a navigation chart in Labrador or New Guinea is remote from any fixed level other than the rocks which surround the harbour. On completion of soundings and topography, he inserts in the memoir of his chart a notice something like this. "These soundings are reduced to a level 42-ft. below

a mark  $\frac{1944}{A}$  cut in the rock at Anchorage Point—Lat.  $x$ , long  $x$ —and the depths represent the conditions (approx.) of low water spring tides at this place." Here the surveyor has done several things for the future benefit of navigation:

- (1) He has observed the tides for sufficient duration to enable the mariner to gauge the depths at low water spring tides and from these the levels of water between high and low water.
- (2) He has identified these levels and ranges with a certain place on the chart and on the globe.
- (3) He has secured a fixed situation for the exploration of tidal constants, i.e., the application of time, height and flow to other nearby localities.

### Thames Tidal Characteristics

Many years before the Ordnance Survey fixed an approximate Mean Sea Level at Liverpool, it became necessary to measure and fix a high water level near the Pool of London. This need arose

from the fact that, although mariners had for a century or more inscribed on the estuarial charts at Sheerness and in Sea Reach the approximate low water datum, the time lag, and the tidal range in the Pool had not been co-related to Sheerness. Consequently, Trinity High Water Mark was fixed at Shadwell, so that in docking ships the accuracy factors of draft and rise of tide would be standardised. The Elder Brethren of the Trinity House were requested to do this and their findings were incorporated in the Act of Parliament, thus according the datum the honour of a statutory level. Trinity standard has to some extent come to be regarded as extendable horizontal level in place of a local one.

Captain Huddart,\* the signatory to the report, expressly stated that high water at other places must be corrected for the flow of the tide between the two points. Could any provision be simpler?

### Rise of the Thames Bed—Effect on Tides

As the Thames bed rose in Huddart's time (which was during the Napoleonic wars) some 24-ft. between Gravesend and London Bridge, it would be obvious that over this distance of 26 miles of sinuous tide-way the high and low levels at the two places would differ in height and time. The bargeman's quatrain applied then as it does now:—

High at the Bridge  
Half ebb at the Sunk  
High in the Downs  
Half ebb London Town.

The rise of the river bed and the slope of the tide-way surface are not of the same gradation, consequently the hydrographic surveyors of the Port of London have taken great care to analyse the requisite low water staircase which forms the reduction for soundings to L.W.S.T. To these gentlemen, Admiral Dawson, Mr. Dobree and their successors, the writer accords due homage. The analysis of a low water datum is a fine art over a tide-way nearly 70 miles in length, and it has been done to a matter of 3-in. of refinement during an epoch of drastic hydrographic changes.

About 1825 the 6-in. Ordnance Sheet became available for civil engineers and dock construction went on apace in London River. This engineering activity was near to Shadwell, the point where Trinity High Water Mark was situated. Dock levels came to be associated with this standard, which approximated High Water Ordinary Spring Tides in the Pool of London. Thus the Trinity High Water line began to travel to other situations and, by a coincidence, that level corresponds to mean high water of spring tides at Woolwich to-day. Several distinguished civil engineers have found the relation very convenient and the docking of ships by pilots who understand the Trinity relation well has also confirmed its widespread utility. In the handbooks giving the the dimensions and tidal relations for the Port of London Docks there will be found depths of sills, etc., below T.H.W.

### Bridge Navigation

The extension of the Trinity High Water Level upstream has less to recommend it, as the river bed rises sharply and with it the slope of the surface levels. Tidal purists would argue that, when plans for the rebuilding or for the construction of a new bridge across the tideway are prepared, T.H.W. should be abandoned in favour of the level of High Water Spring Tides at the particular site, with which the writer agrees. This reservation would apply also to tide levels related to embankments to some extent.

\*See "The Dock and Harbour Authority"—February, 1938, p.p. 101/103—"Tide Gauges in the Port of London."



## Geodetic and Tidal Levels—continued

### Thames Embankments

Two distinguished civil engineers, the late Sir F. Palmer and the late Sir George Humphreys, were appointed to consider the effect of the abnormal tides and upland river discharge of 6th-7th January, 1928, on the future heights to which Thames Embankments should be constructed. The diagram (see Fig. 1) shown on another page shows the result of their recommendations for flood defences, the levels of the abnormal tides referred to and other data. It is remarkable, in fact that these eminent engineers chose a level related to Trinity High Water Level at Southend for the flood warning system which they recommended to come into operation. Thus from the mouth of the estuary through the County and City of London, traversing the riparian boroughs as far upstream as Twickenham Ferry the flood warnings remain correlated to Trinity High Water Mark fixed by Captain Huddart during the Napoleonic wars.

### Low Water Level—Effects of Dredging

From the days of the East India Company, about 1620, the ballasting of ships by using river drift became an important river industry. This was done by hand-worked scoops known as the spoon and bag, operated from the side of a barge at low tide. This industry continued until the surface condensing engine gave us the mechanical dredger. Thus by the close of the 19th Century some thousands of tons of river bed material had been excavated. The steam-driven dredgers' operations for the development and maintenance of the channels proceeded intermittently until 1909, when the Port of London Act called for more systematic treatment of the matter. From the passing of the Act to 1914 when the first world war threw regulated conservancy into confusion, new plant had been provided. At the close of the world war conservancy operations were resumed and by 1930 the tide-way had been deepened by approximately 10-ft. from London Bridge to the Nore. There were several areas which had deepened of their own scouring action, but the mean was about 10-ft. compared with the desired channel requirement. From 1909 to 1930 about 55 million cubic yards of London clay, chalk, septaria, and conglomerate were removed.

### The Primitive Thames Bed

In places as far distant as Wandsworth and the Lower Hope remains of the cave bear, mammoth, wild ox, horse, and, in shell life, that of the Nautilus Regalis were removed from the natural bed of the tidal Thames, convincing proof, if needed, that the dredging was subjecting the ancient Thames to a drastic operation. The effect on the low water levels were important and interesting. From Woolwich Reach alone, with its appendages at either end connecting with Bugsby's Reach and Galleons Reach, about 3½ million cubic yards *in situ* were removed—90% chalk and clay. We would refer the reader again to fig. 2, page 102, February, 1938, *Dock and Harbour Authority*, for an illustration of the fall of the low water level, consequent on this operation. As the river bed is excavated, so does the low water level follow the excavation. Whitworth's chart area 1795 shows that the common depth in this locality then was 10-ft. at low tide. Dredging to 20-ft. with a foot tolerance produced scour. The depths on completion averaged 22-ft. The tideway 50 miles in length continues to receive the attention of dredgers removing in peace-time 2½ million cubic yards from docks from river and for ballast. The low water level in any one place which is susceptible to dredging should not be chosen as the datum. Consequently, there is much to be said for a visible fixed horizontal zero under such conditions. Trinity High Water fits into this picture extremely well for situations downstream of London Bridge.

### Abnormal Ranges

On the 17th September, 1935, the tide fell lower than on any previously recorded occasion. At Woolwich the descent to low water was 24-ft. 7-in. below Trinity level. If this fall is married to the tidal height of 6th-7th January, 1928, which was 5-ft. 2½-in. above Trinity level, we have a potential range of close on 30-ft. The embanking of the Thames tideway has contributed to the rise of the tidal crest.

### Exactitude

Geodetic surveyors in discussing levels refer without reserve to the degree of probable error. Captain Tizard, R.N., when conducting a survey of the North Sea about 1867 or thereabouts, concluded that the land levels of Norfolk and Suffolk were deficient in accuracy from his investigations of sea level when allied to Essex and Kent. Tizard's doubts as to the deficiencies have been supported by evidence from the levelling of 1915-1921, and in some places a foot of error has been found—assuming that the terrain has not undergone such a physical change since 1867. During the 1914-18 war the German tidal officers declared that our levels, times and predictions for tides of the Low Countries were erroneous, and they produced evidence which caused us to re-examine the tidal conditions of the southern part of the North Sea. The result of this research certainly altered the official conception of co-tidal lines in those latitudes, and we now use an amphidromic or umbrella-shaped pattern in this cartographic plan which has its centre situated between the Thames Estuary and Cap Grisnez. At this central position the rise and fall is at the minimum.

### Variation of Mean Sea Level

Sir D'Arcy Thompson, whose researches into the Mean Sea Level around our coasts were connected with the Scottish Fisheries, has written about the fluctuations of mean sea level from various causes. Given calm weather the fluctuations of the barometer correspond with those of mean sea level in that as the barometer rises above mean pressure so does the mean sea level fall, and vice versa. The following tabulation shows the departure from correct mean sea level as noted by tidal observers in the past:—

Place	Dates	Authority	Value	No. of Years Observing
Brest ..	1817	Daussey	15.2	1
Liverpool...	?	Lubbock	11.1	—
London ...	?	Lubbock	7.0	—
Bristol ...	1834-54	Bunt	12.8	21
Aberdeen...	1862-1913	Harbour Office	32.8	52
Dundee ...	1867-1912	do.	21.3	46
Milford ...	1886-1892	Admiralty	17.6	7
Dunbar ...	1913-17	Ordnances	9.6	4
Newlyn (1)	1915-17	do.	16.5	2
Newlyn (2)	1916-17	do.	12.2	1

It will readily be appreciated that conditions near high tide with storm effects remote or in proximity to the observer may swamp the smooth figures of mean sea level and seamen have noted that the joint effect of wind and barometric pressure can be approximately applied in the form of a correction at positions in the English Channel, the data for which is given hereunder:—

(Westerly winds)				
Barometer	28.8 ins.	Add to tidal prediction	14 ins. level	
"	29.0	"	"	11 "
"	29.2	"	"	8 "
"	29.4	"	"	6 "
"	29.6	"	"	3 "
"	29.8	"	"	0 "
"	30.0	Subtract	"	3 "
"	30.2	"	"	6 "
"	30.4	"	"	8 "
"	30.6	"	"	11 "
"	30.8	"	"	14 "

The writer gives this data as a rule of thumb guide for navigation only.

### Geodetic Variations of Sea and Land

The tilt of land at Bidston under tidal load and tidal forces has been recorded by Seismograph there. We are privileged to show in Fig. 2 this interesting phenomenon. Bidston stands on the Wirral Peninsula, having the estuary and valley of the River Dee on its West side and the estuary and valley of the River Mersey on its East side. Similar tilting has been observed where there have not been local estuaries and therefore we are faced with the probability that it is the oceanic tide which has to be considered. In actual fact the amount of tide water running up and down an estuary such as the Mersey or Dee is a small wedge-shaped layer of a water and a fraction of the entire tidal load which covers the land inside of the 100-fathom line. The scale of the curve is on the original 20.5 mm. per 0.1" of arc and the original record was



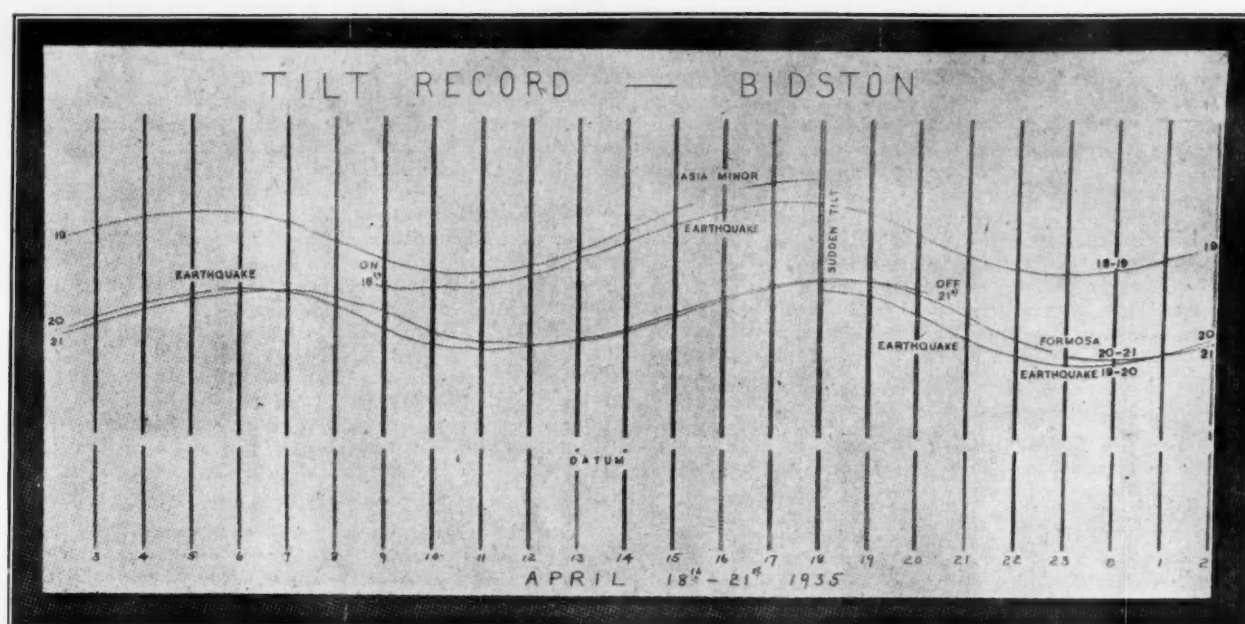
*Geodetic and Tidal Levels—continued*

Fig. 2.—Typical Tilt Record

19½-in. long and 9-in. wide. The curves were analysed to give  $M_2 = 0.0556$  of arc, and the ordinary spring and neap tide phenomena were obtained, together with much larger diurnal oscillations than were encountered in the actual tide. This is an indication of the yielding of the body of the earth to tidal forces and so it cannot be assumed that the curves show only the load tilt. It is a difficult matter to separate load from body tilt, and still more difficult to relate the load tilt to the movements of the sea, for local effects of tidal movements are not the only factors.

**Newlyn**

The Cornish peninsula, which consists mainly of an arrangement of some of the hardest rocks in England, deserves consideration in this interesting phenomena because it contains a station identified with our new ordnance datum. Although the tilt depends on the tidal range near and far, together with the response of the earth as a whole with local responses of the land, one would

like to know the comparative effects measured by seismograph at Newlyn vis-a-vis Bidston. What would the perturbation effects at Newlyn measure up to in tidal relation with the level? The warping of the earth due to tidal load has been dealt with in Sir George Darwin's Book, "The Tides and Kindred Phenomena."

It is not suggested by the writer that the warping affects the determination of mean sea level; for one reason if the observations for that datum cover a sufficiently long period perturbations would be smoothed out in the mean of the readings, and for other geodetic reasons we need not explore here.

Bidston is the headquarters of the Tidal Institute at Liverpool and we are indebted to Dr. Doodson, its Principal, for guidance in the foregoing remarks.

Those who wish to pursue this matter further may read about it in the Geophysical Supplement of the Royal Astronomical Society under the head, "Load Tilt and Body Tilt at Bidston," by A. T. Doodson and R. H. Corkan.

**Grand Union Canal Company****Dock and Waterway Improvements**

At the annual meeting in London on May 3rd of the Grand Union Canal Company, **Mr. John Miller**, the chairman of the Company, made the following observations in regard to the Regent's Canal Dock:

"During the year 1944 we carried through a comprehensive dredging programme at the Regent's Canal Dock at a cost of upwards of £30,000. The greater part of this cost had been provided for in the 1942 accounts as it has been obvious to your board for some time that the arrears of dredging which had accumulated at the dock over very many years must be overtaken if the dock is to play its full part in the post-war period. We were able to arrange for the work to be done at a time when for military reasons there was little traffic in the dock and little to be expected. It was fortunate that we did so as, since that time, dredging contractors have been fully engaged on urgent priority work, and we might well otherwise have had to wait for years to have the work done. The result of the work is that the dock

is now fully capable of accommodating vessels of the maximum draft for which it was designed, and I look forward to substantially increased tonnages being handled in the dock as soon as peace returns. The dock is one of the company's most important assets, and in the post-war period the dock should play an increasingly important part in the business of the company."

Discussing the future of the canal industry, Mr. Miller went on to say:

"If canals are to remain in active commercial use they must be operated by live commercial organisations, using them to their full advantage as part of a comprehensive transport service. Undoubtedly a considerable sum could with advantage be expended on piling, dredging and other works to improve the navigable width and depth of the waterway, but all such expenditure would be valueless if it were financed at the price of nationalisation or quasi-nationalisation. I cannot repeat too often that transport to-day is an indivisible commodity, and that there is little hope for the survival of canals unless canal industry provided not merely a transport track, but a transport service that is equal to the service provided by the other forms of inland transport. Such a service can be provided by the canal industry, but only through the constant exercise of commercial initiative and enterprise."

## Post-War Policy for British Inland Waterways

### Statement by the Canal Joint Committee

The Canal Joint Committee comprising representatives of the Canal Association and of the National Association of Inland Waterway Carriers, having met at intervals throughout the War period to discuss and report upon various matters affecting the Inland Transport System under War Conditions, has now issued the following statement on Post-War Policy. It has been presented to the Minister of War Transport:—

#### STATEMENT ON POST-WAR POLICY

##### 1.—Introduction

In submitting proposals whereby the Inland Waterway Industry may contribute to and properly play its part in the Post-War Transport organisation as a whole, consideration has been given to the Reports of Royal Commissions and Advisory Councils, to proposals for amalgamation or Grouping, to war-time Control measures and to the views expressed by responsible Bodies representing the major Industries concerned with Inland Transport.

The Inland Waterway Industry has also examined in all its aspects the historical background of the Track and the carrying Units using the Track, and taken into account the changing conditions that render certain proposals advisable if the Inland Waterways and the Carriers operating upon them are to be maintained as a necessary and integral part of the Inland Transportation system of the country.

The establishment of the National Joint Industrial Council for the Inland Waterways makes provision through its constitution for fair and equitable wages and conditions of service within the Industry whilst at the same time recognising certain special and local conditions affecting methods of payment to the crews of Inland Waterway Craft.

These proposals have the support of the Industry, and are put forward with the object of indicating the desire of the Industry to formulate proposals capable of being fitted into a comprehensive scheme for Inland Transport; fair alike to Transport and Traders.

The Industry is encouraged by clear indications that Inland Waterways have come to be regarded as a National asset in times of peace and a vital necessity during any war period.

##### 2.—The Track

The Inland waterway system as it exists to-day can be divided into two main categories, firstly, the Estuarial Waterways and Navigable Rivers and secondly, the Artificial Canals.

The former has been maintained in reasonable condition, but the majority of the latter, although maintained in workable condition prior to the war, are below the necessary standard of maintenance for efficient working.

Successive Governments have a responsibility in the matter in that during the 1914-1918 war control of the Waterways was in relation to Railway control, belated, and de-control premature; whilst at the commencement of this war, in spite of submissions which had previously been made by the Canal Joint Committee on the subject of measures required to enable the Inland Waterway Industry to make the maximum contribution to the Country in time of war, the Waterways were not supported at the outset to the serious detriment of maintenance generally. Much skilled labour was lost owing to the general uncertainty which prevailed within the Industry and consequently maintenance fell into arrears.

In order to remedy this state of affairs it is recommended that waterways regularly used for the carriage of traffic should be restored and maintained to provide an adequate navigable channel for the largest craft loaded to maximum draught now in use on the respective waterways.

Further bank protection is necessary to enable power-driven craft to operate efficiently and where practicable locks should be improved. Narrow or low bridges which are an obstacle to the

navigation of craft of maximum dimensions require reconstruction.

Co-incident with the immediate improvements to the Track, the modernisation of terminal facilities and plant is an essential factor. Urgent attention to this matter is required at many terminal points and waterheads to ensure speedy turnaround of craft and the efficient operation of collection and delivery service.

Such improvements as the enlargement and duplication of Locks, the substitution of lifts for locks, the electrification of lock gearing, capstans and movable or swing bridges, together with the possible enlargement of certain canals in order that craft of maximum dimensions may be enabled to operate on through routes are regarded as matters of long-term policy. Such proposals require legislation and financial provision on a large scale.

##### 3.—The Inland Waterway Carriers

The Carrying section of the Industry is comprised of three Statutory Carrying Companies and several hundred units varying in size from single Craft Owners to substantial Companies owning Craft, Terminal Facilities and Warehouses, working on particular routes and often specialising in certain well-defined Traffics.

These units can broadly be divided into two main categories, those working to and from Ports and those working almost wholly within the artificial canal systems. In the main they are not Common Carriers. The size and type of Craft employed is conditioned by the dimensions of Locks and depth of water provided by the Waterway on which the Carrier operates. As these conditions vary with the geographical features and available water supply, so the numbers and types of Craft employed vary in accordance with the demand for transport along the particular waterways.

**Craft.**—Turn-round is one of the main factors in the economic working of Craft, and in this respect consideration should be given to increasing the proportion of power-driven to dumb craft. The provision of winches and derricks on the larger power craft should receive attention so that cargoes can be transhipped or discharged at berths where shore cranes or hoists are not available. The economic size of craft for quick turn-round over a period should be closely examined. The largest craft do not necessarily carry the greatest tonnage in any given period.

**Terminal Facilities.**—Carriers owning wharves require in many instances to modernise cranes, hoists and transit warehouses and to provide at least within reasonable limits an efficient collection and delivery service. If the whole range of traffics requiring distribution from and collection to waterside terminals is to be retained carriers must have a first-class and up-to-date terminal service.

Traders owning their own private wharves and waterside warehouses should be encouraged to instal facilities to ensure the economical and quick turn-round of craft. The provision of mechanical appliances for the discharge of coal at consumers premises is of paramount importance. Demurrage charges on craft are in fact a time penalty and undesirable from every point of view.

**Conditions of Carriage.**—It is recommended that standard conditions should be formulated to meet a demand by traders in general. The possibility of a standard "Waybill" for all forms of Inland Waterway carriage should be examined, with particular reference to tideway working.

**Efficiency in Administration.**—The individual character, flexibility and close personal supervision of many Inland Waterway Carriers have enabled them in the past to meet the particular needs of traders using the waterways and in many instances close working relationships and interchange of craft between carriers where practicable have been adopted. The closest relationship should be established on equitable terms between Undertakers and Carriers to avoid overlapping in the provision of craft or terminal facilities.

It is recommended that consideration be given to voluntary amalgamations, the formation of holding companies or the establishment of working arrangements with the object of controlling the policy of Carriers with like activities in the same area with a view to more efficient working, pooling of information and the quotation of rates.

A comprehensive pool of all craft of varying types in one area is not conducive to greater efficiency in working.

## *Post-War Policy for British Inland Waterways—continued*

### **4.—Finance.**

Almost all the artificial waterways were constructed by private enterprise and without financial assistance from the State. The expenditure now required for the rehabilitation and modernisation may be beyond the capacity of the present Undertakers and in the opinion of the Industry some arrangements should be made to finance the restoration of those waterways considered to be an essential part of the Post-War Transport system.

This recommendation, in so far as it relates to the financial arrangements, is in respect of the canals and waterways other than the canals controlled by the Minister of War Transport under the Railway Control Order of 1st September, 1939.

### **5.—Ministry of Transport**

The Inland Waterway Industry in the past has felt the need for a strong Division of the Ministry to look after its interests. The setting up of such a Division during the war has been most beneficial and it is urged that the Department become a permanency.

### **6.—Town and Country Planning.**

It is desirable that the Inland Waterway Industry should be consulted locally, regionally and nationally and that there should be the closest liaison between the Inland Waterway Division of the Ministry of Transport and the Planning Authorities as well as with all Government Departments concerned with the location of new industries or the rehabilitation of existing industries.

It is of the utmost importance that industries concerned with bulk commodities such as Grain, Flour, Sugar, Cocoa, Cement, Chemicals, Iron and Steel, Lead, Cotton, Wool, etc., be located adjacent to waterways and a broad policy followed in this respect because it may well have a great bearing on the traffic available for conveyance on inland waterways in the future.

Having regard to the necessity for conserving the country's water resources the facilities which artificial canals are able to offer in respect of the use of canal water for industrial purposes should be borne well in mind by Planning Authorities. Furthermore, as one of the major traffics passing over the artificial canals is coal from canal served collieries, the Central Electricity Board and other large consumers should give preferential consideration to the siting of power stations and other works adjacent to canals.

### **7.—Public Legislation**

A statement covering legislation which might be beneficial to the Industry has been prepared, but apart from the power to facilitate abandonments and amalgamations it mainly covers items of administration and has little bearing on the general policy which should be adopted after the war.

### **8.—Labour**

The requirements of the industry should receive full consideration when demobilisation commences and men with service experience of navigation and operation of small craft should be advised of vacancies in the carrying section of the industry and those experienced in the use of mechanical excavators and dredging plant should be encouraged to seek engagements with the Canal Authorities.

### **9.—Policy to be Adopted**

It is agreed that all forms of transport are essential in the interests of the community and it is the opinion of the Inland Waterway Industry that measures should be adopted to create conditions in which all forms of public transport can be self-supporting and enabled to operate, if they are efficient, with a reasonable margin of profit.

Traders should be at liberty to choose means of transport best suited to their requirements and it is recognised that they should have the fullest protection against unreasonable charges, but it is questionable whether such protection should take the form of the unlimited use by traders of their own vehicles for it is difficult to see how any Rates Structure could be maintained if traders had the right to use their own vehicles in all circumstances. Local delivery of traders' own goods is excluded from this argument.

There should be a restriction on the freedom of the public

carrier to undercut scheduled rates and if a satisfactory solution of the Road and Rail problem can be found on the correlation of rates, services and obligations then the Rates Structure of Inland Water Carriage would tend to fall naturally into line.

A statement of comparative costs between different forms of Inland Transport cannot be given with any accuracy owing to the number of variable factors included in any composite charge or rate, but the ultimate test of any schedule of rates is whether it enables each transport system to attract traffic and maintain an adequate net revenue.

In the main the application of the Rail Rates Structure and the charges for conveyance by water existing at the commencement of the war were uneconomic. Any new Rates Structure or system of charging for the different forms of transport must be based on an economic foundation otherwise the whole transport system will inevitably deteriorate.

In the view of the Inland Waterway Industry it would be fallacious to base any conclusions as to the soundness of the existing rates structures on conditions prevailing during the war. Industry must pay the fair cost of the Transport it demands having regard to peak requirements or have its transport subsidised through the taxpayer.

**Allocation of Traffic.**—The Inland Waterway Carriers are opposed to any scheme for the allocation of traffic in the sense that traders must consign and operators must carry certain classes or grades of merchandise. Once the basis of charging has been settled, traffic should flow along those routes best suited physically and economically to the particular trader concerned. The right of the trader to choose the means of transport best suited to his requirements is supported.

**Rates.**—The Inland Waterway Carriers regard the introduction of correlated rates structures for all forms of inland transport as fundamental to the continued efficiency and progress of transport. The key to any general rates structure is the future relationship of Road and Rail Rates for like services. Once this has been ascertained and agreed, water conveyance in general would fall into line subject to a suitable differential.

The Inland Waterway Carriers appreciate that their ability to carry economically under this scheme entirely depends upon the level of charges agreed for the Road-Rail Structure which in turn would protect the trader against unreasonable charges. On the other hand, the Inland Waterway Carriers, having regard to the proportion of potential water-borne tonnage to total tonnage, realise that no general rates structure could be satisfactorily based by working upwards from the cost plus profit basis of water conveyance.

Inland Waterway Carriers, therefore, whilst advocating a new Rates Structure for conveyance by water, must await the outcome of the Road-Rail Conferences now formulating their own correlated structure and in the meantime offer all assistance or information that may be of value.

An efficient and progressive transport system is essential in the interests of Industry and the Public and in view of the Inland Waterway Industry this can best be attained by retaining all the existing transport agencies with their flexibility to make such adjustments as may be necessary to meet changing circumstances, and not by nationalisation.

Before embarking on schemes of amalgamation or grouping of Inland Water Undertakings it is recommended that a scheme of guaranteed maintenance should be established for the independent waterways until the Post-War Policy for Transport in general materialises.

This should enable the Inland Waterway Carriers to operate during the transition period with some assurance in regard to the incidence of Tolls in relation to freights and to formulate their Post-War Plans in respect of craft and terminal facilities. Such an arrangement would preserve the waterway facilities and have no adverse effect on any policy which may eventually be adopted for the transport industry as a whole.

The Canal Joint Committee,  
9, Victoria Street,  
Westminster, S.W.1.  
May, 1945.



## Port of Gloucester

At the recent annual meeting of the Sharpness Docks and Gloucester and Birmingham Navigation Company, the Chairman, **Mr. W. H. Cullis**, after pointing out that for reasons of national security, stockholders had been denied almost the whole of the information normally given to them for the last four years, said:

We all know that war upsets the normal quantities and directions of trade. Imports of most peace-time commodities must be cut down as far as possible; new and sometimes very strange imports must be arranged and exports of an equally unusual nature are made. Over-riding every other consideration is the need for shipping of all kinds and all sizes. That is all quite obvious. A little less obvious are some of the secondary effects of these changes on the use which ports of our size can be to the country in war.

The scarcity of ships and the use of the convoy system to reduce losses add, very materially, both to the difficulties and expenses of discharging and loading cargo. To exceed by one day the time allowed for the clearance of a ship is likely to mean the loss of the use of that ship not for one day only, but for whatever the period is between convoy sailing dates. No one connected even remotely with the trade of carrying by sea needed any reminder that the continued existence of the country depended, quite literally, on the supply of cargo tonnage. As a result, there have been many occasions in the past four years when work had to be driven through with no thought for the money cost and very little thought for the comfort and convenience of those engaged in the work. Our port has no reason to be ashamed of the way in which the emergency has been faced.

### Extensions of Sharpness Docks.

If stockholders could visit Sharpness they would notice considerable changes. The docks there were constructed in 1874, but were not completed in their entirety. To meet war-time needs the Ministry of War Transport granted your Company financial assistance to provide a number of additional facilities, not least of which was the completion of the quays to provide additional berths for ships. These extensions provide an additional 1,000-ft. of quayage; they are equipped with the most modern type of crane and other cargo handling facilities, and having served the war-time demands they should prove a valuable asset for dealing with peace-time traffics of a type which Sharpness has previously been able to handle only with some difficulty and even at great cost.

The portion of the capital expenditure which the Company has had to provide from its own funds has only been met by the most careful financial economy, and given a fair share of the peace-time tonnage, these measures should prove their value and enable the port to maintain its position.

### The Future

You will hardly expect me to make many observations about the future. I cannot prophesy, but I can assure you that post-war plans and policies are receiving most careful study. The post-war policy of the docks and harbours is the subject of a most interesting report made to the Minister and recently published in the Press, and I feel sure the Government will give due weight to the recommendations which the report contains.

Likewise the inland waterway industry is about to publish a statement on its post-war policy. There is a common measure of agreement that all forms of transport are essential in the interests of the community, and the inland waterway industry is of the opinion that measures should be adopted to create conditions in which all forms of public transport can be self-supporting, and enabled to operate, if they are efficient, with a reasonable margin of profit. This implies that the most careful consideration should be given to the establishment of a rate structure for transport to enable each transport system to attract traffic and to maintain an adequate nett revenue.

Your directors are watching very closely all the developments connected with both docks and waterways, and it is hoped that by careful planning, successful results will be achieved.

In our case at the present time little is definitely known of the conditions under which we shall be working, but both the Severn

Barrage and the Severn Bridge Schemes are continuously under examination. On both we have had the benefit of consultations with their authors and such advice as it is possible to obtain in the absence of much essential information.

With the Commissioners of the River Severn Navigation we have been closely in touch on their proposals for the improvement of that waterway, now being brought prominently to the notice of all concerned by their most able and energetic Chairman. We are anxious to assist the Commission in every way we can, and to conserve and extend the friendly co-operation now existing.

## Admiralty Chart Supply and Correction

The British Nautical Instrument Trade Association have just published a serviceable and opportune pamphlet outlining a post-war chart service on behalf of British shipping.

It will be remembered, the pamphlet points out, that in 1943 the Ministry of War Transport introduced a scheme for the free loan of word chart folios to all foreign-going vessels under their control, which could be exchanged at any Admiralty depot for up-to-date corrected charts. This war-time scheme involving continuous revision to some 3,800 Admiralty Charts, has worked well, but the time has now come, the Association considers, for the re-organisation of an efficient, independent chart service at all British ports.

In order that an efficient commercial Chart service may be at the disposal of British shipping, it is vital that the majority of ship-owners should accept the principle of examination and correction ashore by qualified men. So that owners and superintendents may study the matter in detail, the Association have published in this pamphlet a schedule of Chart Folios covering world routes; together with a list of members of the British Nautical Instrument Trade Association, some thirty of whom are official Admiralty Agents.

Free copies of this pamphlet may be obtained from The Secretary British Nautical Instrument Trade Association, 105, West George Street, Glasgow. C.2

## Southampton Harbour Board

At a meeting of the Southampton Harbour Board on 26th April, 1945, **Mr. H. A. Short, M.C.**, was re-elected Chairman and **Alderman T. Lewis, J.P.**, vice-Chairman for the ensuing year. In acknowledging his re-appointment Mr. Short said:

"The year through which we have just passed will always be remembered as the year of Liberation, and when History comes to be written, the outstanding part played by Southampton will be revealed. The times through which we have passed have indeed been memorable, and only those involved in the long preparation for "D"-Day can realise the immensity of the task which we were called upon to perform. Only by the closest co-operation between the whole of the authorities, both Service and Civil, was the success achieved made possible.

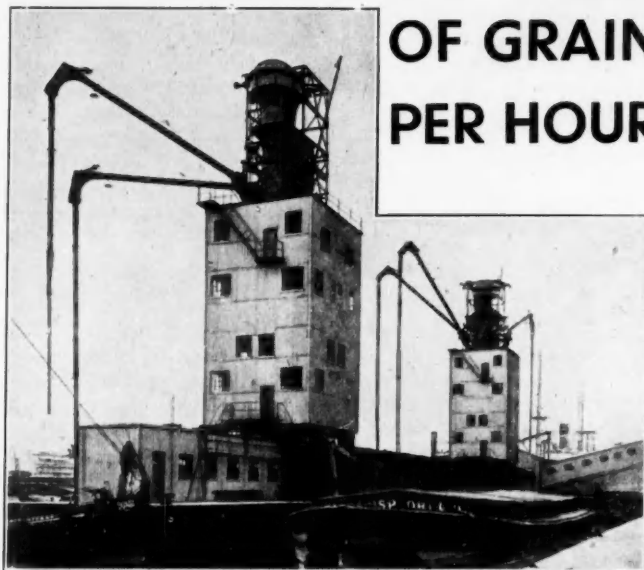
Looking back on the whole operation, I feel that the Board can regard with considerable pride the part which it played in all these activities. Heavy responsibilities were placed upon the Officers, and all of them were efficiently shouldered and whole-hearted service was ungrudgingly given by all concerned. I feel that you will agree with me that we should place on record our congratulations to the General Manager and Clerk, the Officers and all the Staff who did such excellent work, under the very trying period through which we have passed."

**Major-General N. G. Holmes, C.B., C.B.E., M.C.**, War Office Representative on the Board and **Captain A. Johnston, D.S.O., R.N.**, Admiralty Representative, also expressed their thanks to the Board and to the Southampton Authorities generally, including their respective staffs, for the part they played in the events leading up to "D"-Day.

### Hull Dock Appointment.

**Mr. R. B. Waddington**, hitherto assistant, has been appointed District Docks Machinery Engineer, at Hull (London and North Eastern Railway), in succession to **Mr. F. E. Stacey**.

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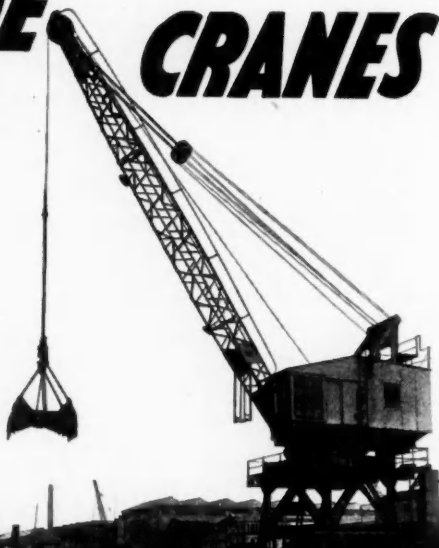
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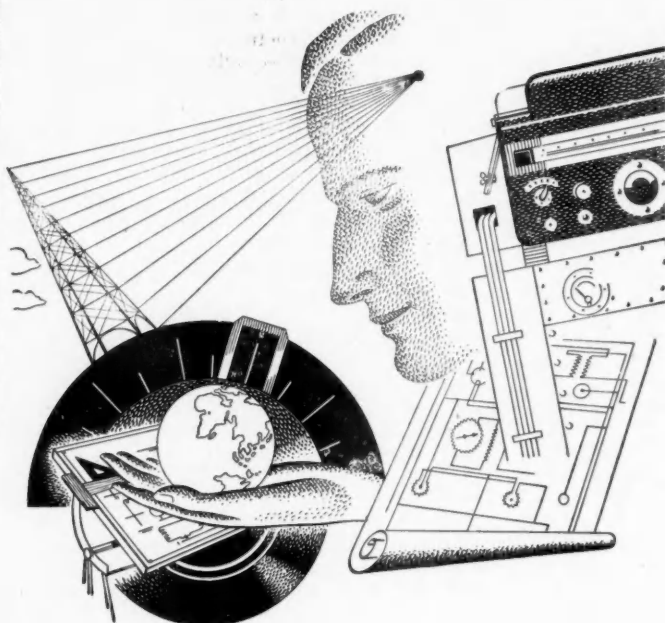
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New problems have been met as they have arisen by a team of experts with all the experience of a pioneer organisation behind them. Still newer problems are on the horizon of the post-war world. These too will be handled with the same resourceful skill. Whatever the demands of a new age—you know where you are with Marconi.

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